# THE BUILDER

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## THIS WEEK'S NEWS


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THE NAMES of prominent personalities in the building industry and allied professions appeared in the King's Birthday Honours List published on June 10. 734

SAFETY PRINCIPLES to be observed in the design, construction and layout of roads were enumerated by Mr. E. B. Hugh-Jones, M.C., B.Sc., M.Inst.C.E., when he gave the first Rees Jeffreys lecture at the Town Planning Institute. 736

THE COUNCIL of the Royal Society of Arts is again organising an Industrial Art Bursaries Competition. Among the sections in the competition are those for the design of carpets, domestic solid-fuel-burning appliances, electric-light fittings and wall-paper. 739

SOME ASPECTS of the design of industrial buildings in relation to the workers' health were described by Mr. E. D. Jefferiss Mathews, O.B.E., F.R.I.B.A., at the Health Congress of the Royal Sanitary Institute at Brighton. 749

AN OUTLINE of the scope that exists for British consulting engineers in Canada, particularly in the Prairie Provinces, has been given by Mr. G. Kenyon Bell, M.Inst.C.E., chairman of the Association of Consulting Engineers. 750

A WARNING to planners of the dangers of over-centralisation was given by Sir Arthur Salter when he presided at the jubilee dinner of the Town and Country Planning Association. 751

DETAILED COMMENTS on Foremanship Courses in relation to building education were made by Mr. D. A. G. Reid, B.Sc., A.M.Inst.C.E., Principal of the Brixton School of Building, at the annual meeting of the Association of Technical Institutions. 752

THE CLAIM that housing progress was limited by physical resources, not by administrative machinery, and that it was the industry itself, not the Government, that could do any more, was made by Mr. Aneurin Bevan, Minister of Health, at the Labour Party Conference at Blackpool. 755

MR. NORMAN LONGLEY, President, N.F.B.T.E., has stated that builders were in no way responsible for the fact that 5,000 fewer new houses were completed in April than in March. 755

THE SUGGESTION that present-day conditions call for a shorter period of apprenticeship for the craft trades of the building industry, although opportunities must be provided for the development of "proper super craftsmen," was made by Mr. Nigel Hannen, President, L.M.B.A., at a London luncheon. 755

THAT BUILDING employers, large and small, should look upon training for the supervisory grades of the industry as a combined operation to which they should all contribute has been urged by Mr. D. E. Woodbine Parish. 756

THE FEDERAL GOVERNMENT OF AUSTRALIA is adopting British, European and American methods of mass-producing roof tiles by the "extrusion" process, to help overcome the present severe shortage of roofing materials. 757


## REPAIR OF CHURCHES: A SERIOUS PROBLEM

THE one hundred and thirtieth annual report of the Incorporated Church Building Society, just issued, reminds us that a great many of our parish churches are in urgent need of repair. There are over 15,000 such churches in England and Wales, many of them ancient buildings of great beauty and interest. The attention they would normally have received was denied them during the war years, and since then the problem has been accentuated by the greatly increased cost of repairs and the pressure of other urgent building work. The I.C.B.S. is doing all it can to help with architectural advice and monetary assistance, but such help, it is stated, is small compared with what is needed. Something of the magnitude and seriousness of the problem may be gathered from this record of the Society's experience in 1948. "During the year," states the Report, "we received something like 100 reports by architects on the condition of church fabrics in all parts of the country. Most of these record serious—and often dangerous—conditions calling for immediate action to save the fabric, and in some cases parts of the churches have had to be closed to protect the congregations from possible falling masonry and the like. Other instances occur indicating conditions which could have been prevented by regular inspection of the fabric—consistently recommended by the Society for very many years before the formation of Advisory Committees and other similar organisations."

Nearly all reports record damage to roofs and consequent infiltration of rain-water to the interior—often with disastrous results. "In several instances work appears to have been postponed until some incident occurred which forced responsible officials to take action, and even then delay sometimes occurred until sufficient funds were in hand to pay for at least a part of the work." Many churches, it is feared, may suffer permanent harm unless something can be done to help Parochial Church Councils with advice of an authoritative nature and with monetary grants.

One pleasing fact recorded in the Report is the generous support which is being given to this work by the Pilgrim Trust. During a period of nine months in 1948 the Trust received applications on behalf of 55 ancient churches of historic interest for grants towards repairs involving a total expenditure of £116,000, of which at least £66,000 had still to be raised. The Trustees compute that a million pounds might not be an excessive sum to repair effectively the ancient and historic parish churches of England. Further evidence of the seriousness of the problem is found in the fact that the Trustees have now been forced to adopt a revised policy towards applications, and in future appeals will be considered only for first-aid repairs (*i.e.*, measures to prevent further deterioration until permanent repair can be effected), and only where it can be shown that progressive damage is actually occurring to the structure or to valuable works of art therein, or where the fabric has been certified as dangerous. Even within these limitations the Pilgrim Trustees will not be able to assist every case submitted to them, and appeals can only be entertained in connection with churches possessing features of architectural, historical or artistic merit. Grants from the I.C.B.S., of course, are made to all churches in need.

The repair of ancient buildings, and of churches in particular, is a delicate business, often involving an intimate knowledge of mediæval building methods, and always full acquaintance with the special techniques of conservation. Much harm has been done to many ancient buildings by unsympathetic repair, and it cannot be too strongly urged

that any serious work should be entrusted only to a specially competent builder working under the direction of an experienced architect. As the Report points out, a qualified expert will specify only such work as may be necessary for the conservative preservation of the fabric, having regard to its period and antiquity. The R.I.B.A. is always prepared to advise on the selection of an architect. The immediate need in many cases, however, is to ensure that ordinary maintenance repairs are properly attended to, and to this end Mr. Herbert Passmore, F.R.I.B.A., a member of the Society's Committee of Architects and Consulting Architect to the Church Commissioners, has contributed to the Report some most useful notes on church maintenance for guidance of the clergy and others likely to be considered. The Pilgrim Trust in its own Report points out that the problem of church repair is far beyond the scope of any measures yet initiated by the Church of England, and it is asking the Archbishop of Canterbury to call a conference of all concerned to establish a comprehensive policy for church preservation. We believe that even in these difficult times a national appeal for funds to preserve our ancient churches would receive a prompt and generous response from the public. In the meantime, all who are closely interested in the subject should read this I.C.B.S. Report, which can be obtained, price 2s., from the office of the Society at 7, Queen Anne's Gate, Westminster, S.W.1.

# NOTES AND NEWS

**Birthday Honours List.**

LORD MORRISON, Parliamentary Secretary, Ministry of Works, was created a Privy Councillor in the King's Birthday Honours List published on June 9. Mr. Frederick Lucius O'Brien, chairman of the Northern Ireland Housing Trust, becomes a Knight Bachelor, as does Mr. James Barr, senior partner in the firm of James Barr and Sons, surveyors, Glasgow.

Among other prominent personalities in the building professions and industry who received honours were :—

**C.B.**—H. Symon, Under-Secretary, Ministry of Health; H. Kendrew, Under-Secretary, M.o.W.; **C.B.E.**—B. C. Hammond, County Surveyor, Worcestershire; G. H. A. Field, director of research, Aluminium Laboratories, Ltd.; A. M. Holbein, director and chief engineer, Demolition and Construction Company, Ltd.; W. A. Rutter, chief architect, M.o.W.; Major A. H. S. Waters, V.C., chairman, Advisory Committtee on Sand and Gravel Workings; E. G. Wylie, principal consulting architect to Scottish Industrial Estates Ltd.; **O.B.E.**—A. H. W. Abbott, regional manager, Southern Region, War Damage Commission and Central Land Board; H. R. Coales, architect, Ministry of Health; A. K. Barter, assistant regional director, Birmingham, M.o.W.; T. C. Howitt, chairman, Practice Committee, R.I.B.A.; G. T. Pound, senior planning officer, Ministry of Town and Country Planning; J. Robertson, county road surveyor, Dumfries; C. B. Sprigings, chairman, Regional Joint Committee, Southern Counties Federation of Building Trades Employers; T. R. Eltringham, assistant chief architect, M.o.W.; S. D. McKelvey, member of the National Executive Council, Amalgamated Society of Woodworkers; and A. R. Potter, secretary, Town Planning Institute.

**L.C.C. and Fees for W.D. Work.**

AT the next meeting of the London County Council on June 28, Alderman Magnus Wechsler is to ask the chairman of the General Purposes Committee:—

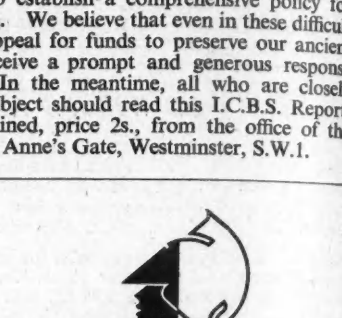
(1) Whether private architects employed by the Council on war damage repair work are paid according to the scales laid down by the Royal Institute of British Architects or according to the lower scales which represent only the contributions which the War Damage Commission is prepared to make towards the owner's expenses in connection with professional fees?

(2) Is he aware that the R.I.B.A. has refused to accept the War Damage Commission scales as representing reasonable remuneration for the work involved, and having regard to the fact that such work comprises negotiation with the War Damage Commission in addition to the usual preparation of plans and specifications, will he agree that the attitude of the R.I.B.A. is reasonable?

(3) Does he consider it proper for a public authority to press professional men to accept fees below those approved by their respective ruling bodies, and will he give an assurance that in all future cases the Council will pay architects' fees according to the R.I.B.A. scale?

**Festival of Britain Symbol.**

A SYMBOL has been adopted by the Council of the Festival of Britain 1951. The winning design was chosen by the Festival Council from entries received in response to a limited competition among specially selected designers. The advice of the Council of Industrial Design and of the Arts Council of Great Britain was sought in drawing up the initial list of competing designers.




**The Festival of Britain Symbol. Abram Games, F.S.I.A., Designer.** (*See Note.*)

The symbol, designed by Abram Games, F.S.I.A., shows the head of Britannia surmounting the star of the compass. The surrounding pennants suggest a festive note: the full colours are red, white and blue, alternately patterned on a gold ground.

In order to ensure correct reproduction, master drawings are available for anyone desiring to use the symbol from: The Festival of Britain 1951, Press Office, 2, Savoy-court, Strand, London, W.C.2. Manufacturers are asked to apply to: The Council of Industrial Design, Tilbury House, Petty France, London, S.W.1.

**A Visit to France.**

A GROUP of members of the Prestressed Concrete Development Group are attending by invitation a congress on prestressed concrete organised by the Association Scientifique de la Precontrainte (A.S.P.), Paris, at the end of this month.

The A.S.P. is a society formed in conformity with French law by a number of French engineers representing all sides of French civil engineering (designers and consultants, public authorities, professional associations, etc.) having objectives that are essentially the same as those of our own Prestressed Concrete Development Group. The society was first formed under the auspices of an official body known as the Société Pour l'Encouragement de l'Industrie Nationale, whose title needs perhaps neither translation nor explanation, and other bodies of a similar nature have since lent their patronage.

The administration of the society is

ST. MARY'S CHURCH, WEST BROMPTON, MIDDLESEX.—GEORGE GODWIN, F.R.S., ARCHITECT.

**(See "From 'The Builder' of 1849.")**

at the moment being undertaken by the Institut Technique du Batiment et des Travaux Publiques (Technical Institute of Building and Public Works). The society hopes to co-operate with similar bodies outside France. Visits to the prestressing work carried out in France will be arranged under the guidance of the engineers responsible.

**Pagani's of Portland-street.**

THE news that Pagani's, the once famous meeting place of Edwardian celebrities, is to be rebuilt will be welcomed by all familiar with its interesting history. At the moment its ruins strike a note of melancholy in the otherwise lively atmosphere of Great Portland-street, a thoroughfare which has certainly changed its character in a comparatively short span of years.

Pagani's started as a small coffee house in 1871. It developed into the most popular meeting place in London for musicians (especially Italians). But the grey-distempered walls bore witness to it being also the resort of the worlds of letters, art and of sport, and that the restaurant was their metropolitan home for many decades. It was the fashion to inscribe one's name, write a snatch of music or sketch on the walls.

Before Pagani's was destroyed by fire during the war these inscriptions, some of them valuable, were protected by glass panels. To-day the slick efficiency of the modern restaurant or place of entertainment is obviously on the credit side from the financial viewpoint, and although it would be foolish to return to the proposed new Pagani's and expect to discover its links with the past it will be interesting to see what shape the new premises will take.

**Appointments.**

MR. W. R. PAICE, F.R.I.C.S., has been appointed Official Surveyor to the Church Commissioners.

MR. JOHN ARMITAGE, engineering surveyor with Cudworth Urban Council, has been appointed Borough Engineer of Berwick-on-Tweed in succession to Mr. J. D. Bolton, who has taken up an appointment at Edinburgh.

## COMING EVENTS

**Saturday, June 18.**

LONDON SOCIETY.—Visit to the Admiralty. Mr. Gerald Hayes as guide. 2.30 p.m.

**Tuesday, June 21.**

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—"Questions and Answers in Practice," by Mr. C. Woodward, A.R.I.B.A., and Mr. S. Redfern, LL.B. 66, Portland-pl., W.1. 6 p.m.

**Wednesday, June 22.**

MIN. OF AGRICULTURE AND FISHERIES (AGRICULTURAL LAND SERVICE).—Royal Counties Agricultural Show features exhibits of interest to building professions and industry including one entitled "Reconstruction of a War Damaged Farm." Reading. Continuing until June 25.

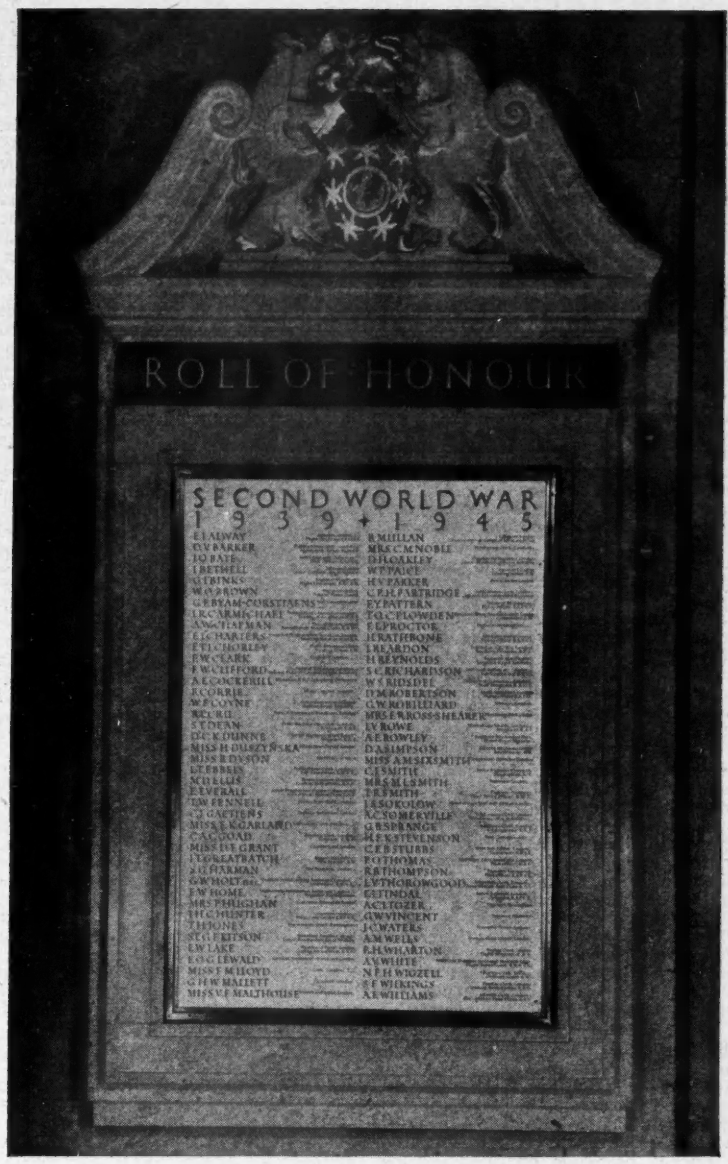
**Thursday, June 23.**

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—Cricket match *v.* Architectural Association. A.A. ground, Furzehill-rd., Boreham Wood. 11.30 a.m.

TOWN PLANNING INSTITUTE.—General Meeting and address by Sir Malcolm Trustram Eve, K.C., on "Practice Notes of the Central Land Board." Assembly Room, Central Hall, Westminster. 6 p.m.

**Friday, June 24.**

THE ENGINEERS' GUILD.—Discussion on "The Guild as an Association of Professional Engineers." Speaker, Mr. Bryan Donkin, B.A. M.I.E.E. Lecture Theatre, South Wales Institute of Engineers, Park-pl., Cardiff. 6.45 p.m.




**B.B.C. WAR MEMORIAL. Edward Maufe, R.A., Architect.**

This Memorial has recently been unveiled in the entrance hall of Broadcasting House. The main design is of Hopton Wood stone built out from the existing Hopton Wood stone wall; the frieze is of Westmorland slate, picking up the tone of the bronze surround to the Roll of Honour itself. The names are inscribed on vellum in sepia and gold, being the last work of the late Percy Smith. The Memorial is surmounted by the B.B.C. achievement carved and coloured by Mr. Barry Hart. The work was executed by Messrs. Fennings.

## FROM "THE BUILDER" OF 1849

*Saturday, June* 16, 1849.

ST. MARY'S, WEST BROMPTON.—Additional church accommodation being required for the western portion of Brompton, in Middlesex, the incumbent, the Rev. W. J. Irons, B.D., took steps to obtain it; Mr. Gunter, a wealthy and liberal proprietor, of the neighbourhood, generously presented a plot of land for the site of a new building, situated between the Fulham-road and Earles Court-road; and an energetic coadjutor being found in the Rev. Hogarth J. Swale, plans were prepared by Mr. G. Godwin, architect, and being approved of by the Lord Bishop of London and the Church Commissioners, are about to be carried out forthwith. . . .

The following tenders were sent in for the execution of the work :—

| | |
|---|---|
| Carter and Ellis | £3,297 |
| Glenn | £3,251 |
| Haward and Nixon | £3,240 |
| J. Barr | £3,096 |

Considering that each builder took out his own quantities, their close approximation is somewhat remarkable.

The estimated additional cost of Caen stone for the dressings in lieu of Bath stone varied from 130*l.* to 100*l.*

# THE SAFETY FACTOR IN ROAD DESIGN

## First Rees Jeffreys Lecture

CARDINAL safety principles to be observed in the design, construction and layout of roads were mentioned by MR. E. B. HUGH-JONES, M.C., B.Sc., M.I.C.E., when he gave the first Rees Jeffreys Triennial lecture at a meeting of the Town Planning Institute on May 5.

Following are extracts from his remarks:—

The first step in considering the replanning of a highway system of a town is to examine thoroughly the existing pattern of the whole area to find out its defects. It will be admitted that many roads and streets have come into being on alignments and to widths which are not in keeping with modern needs, but generally the routes carrying the major volumes of traffic are used because they are conveniently sited for the traffic using them. The replanning of the highway system in any town is not the design of a completely new highway system, the construction of new streets, or even the widening of existing streets. Reorganisation and co-ordination of transport movement is an essential part of the plan. On an existing congested route the diversion of controllable traffic on to a nearby route, with or without improvement of the latter route, may well mean that the former may not require to be improved at all.

There should be full traffic and economic justification for each road incorporated in the plan. The ultimate highway pattern must be capable of evolution by stages, each stage making a progressive contribution to the plan by reducing traffic congestion and other problems in the town. A plan which does not incorporate these features and necessitates the construction of the major part of the replanned road pattern before it can function, is no plan at all. It is, therefore, necessary to prepare maps showing, stage by stage, the evolution of the plan in steps of, say, 10 years, to ultimate completion.

In siting new routes, the gradients should compare favourably with those on the existing route to make the alternative attractive to traffic. It is realised that modern vehicles will tackle almost any gradient found on an existing road, but where alternatives are presented gradients, alignment, restriction of access and ease of negotiation of controlled intersections must all be such that the new route will prove the more attractive.

The design of intersections should be considered at an early stage since it is at these points that the most congestion and danger invariably occur. It is good practice to see that the intersections are capable of being properly laid out before settling the alignment of the road.

Perhaps the design on the cover to the *Report of the Committee on the Design and Layout of Roads in Built-up Areas* is responsible for an inclination to make ring roads a fetish. Often the flow of traffic and the location of shopping or industrial areas are such that no ring-road is required or only a portion of a ring: even if complete ring roads are necessary, they need not be uniform throughout in layout, function or traffic value. Parts may be through routes, others local through roads and other parts of local value only.

We should, therefore, approach the highway problem in the plan of each town with an open mind, remembering that a so-called "ring road" may be rectangular or triangular in shape, or may not be completely circumscribing, while there may be cases where other solutions than ring roads are not only possible but to be preferred. The way in which the replanning proposals for a town will fit into the replanning proposals for the area immediately surrounding the town must always be kept in mind.

In considering the alignment of roads around the inner core of the town, regard should be had to what are essentially central area uses. Shops and offices, civil buildings and some places of public assembly are, of course, properly found at the centre of the urban area, and some light industry and certain warehousing can also be included, but a group of residential streets is not normally suitable for enclosure within an inner ring road. Information and agreement will, therefore, be required on the extent of existing and proposed use of land before the lines of ring roads around the inner core of the town can be laid down. Maps on these lines are normally produced by the planning authority when preparing a scheme. Market and shopping areas should be designed as precincts into which through traffic does not pass. Schools and residential districts would be grouped as far as possible to one side of traffic routes so as to avoid the need for children and others to cross over them.

Even if an inner ring road is to be provided, a very considerable volume of traffic will want to enter the central area, and therefore access to the centre must be easy and reasonably frequent. The central area itself must provide facilities for the convenient movement of traffic but, at the same time, it should be more convenient and quicker for through traffic to use the ring road than to traverse the centre. This can best be achieved by careful alignment and design and by the provision of adequate and attractive facilities on the ring rather than by the introduction of baffles on existing routes.

### Siting of Car Parks.

The correct siting of adequate car parks is vital to urban highway plans. Where possible the car parks serving shopping streets should be sited in very close proximity to the shops and, if possible, between the shopping street and the through route. Similarly, car parks serving uses which are busy during the day-time should, if possible, be sited where they will perform a useful function in the evening.

Bus and coach stations, too, must be convenient for shops as well as properly serve traffic interchange between public service vehicles and the railways. It should be unnecessary for coaches and buses to traverse the principal shopping streets; the distance between the shops and the bus station should not be more than, say, 300 yards—in fact, half that distance is considered by many to be too high a maximum. Estate development advice points to the necessity for getting the public transport routes as close as possible to the passengers' main objectives and, so long as it is consistent with both vehicular and pedestrian safety, it should be one of the aims of good design.

The destruction of property and the making of roads is an expensive business and, although bold conceptions should be encouraged where these are necessary, and roads and intersections must be made ample for safety and proper amenity, extravagance must be avoided in the layout of either, and this applies, of course, not only in urban areas but in the open country as well.

The financial implications of that rather obvious remark are illustrated by the costs of road maintenance. At the present time it is costing about £900 a mile per annum to maintain and carry out very minor improvements on the trunk roads; other first-class roads cost about £400 a mile for maintenance, and I do not think that is keeping pace with their deterioration under the heavy commercial traffic of to-day. A road with twin carriageways will, over a period of years, cost not less than £1,000-£1,200 a mile for maintenance which has to be borne by the ratepayers of the district or by Government funds; in either case, construction and maintenance expenses of new roads are a considerable additional burden on the public. It is as well to bear in mind also that every acre of wheat land taken out of production for roads would have kept seven people in bread and flour for a year. It often happens, however, that it is cheaper and safer to build a new road than to widen and improve an existing highway.

A new road can be for all kinds of traffic or for only one type of vehicle. There is, I think, a fundamental difference between some of the principles which should be followed in locating a new all-purpose road and a road reserved for fast motor traffic. Most of the engineering principles are the same—cut and fill should balance; the road should be fitted to the countryside so that it makes as small a scar as possible on the landscape; both should try to establish that streamlined, easy flowing appearance to a driver on the road, by co-ordinating the gradients with horizontal curvature—but, as an all-purpose road is available to pedestrian, cyclist and motorist alike and to agriculture along its path, it must be placed so that it has easy and frequent, though restricted, accesses to it throughout its length and will pick up traffic from all the roads it crosses.

The all-purpose by-pass road is primarily to relieve the town of those vehicles which have no occasion to stop there and thus produces safer and pleasanter conditions for local town traffic and shoppers; it will, therefore, usually be sited on the outskirts of the town where pedestrians and cyclists are fewer and the land to be acquired less expensive.

The new all-purpose road is designed for a speed of about 60 miles per hour.

The motor road, on the other hand, is essentially for long-distance traffic between large centres of population; it must serve the towns to which it leads and through which it passes. It is designed for a speed of 75 or 80 miles per hour. There must be sufficient accesses as will permit motor traffic conveniently to get on to the new road from the trunk or other first-class roads. This fast traffic must be segregated from the local traffic; accordingly, a motor road will invariably pass over or under all the existing roads as a railway does and with a similar degree of segregation, but with more frequent points of access through large towns. In the open country accesses will be 5-10 miles apart. Although building 800 miles of motor roads amounts only to increasing the length of classified roads by less than 1 per cent., it would make a noticeable contribution to the safety of the towns and districts through which they pass for they will take much of the through traffic off the town streets and away from the villages on to routes where there are no pedestrians or cyclists.

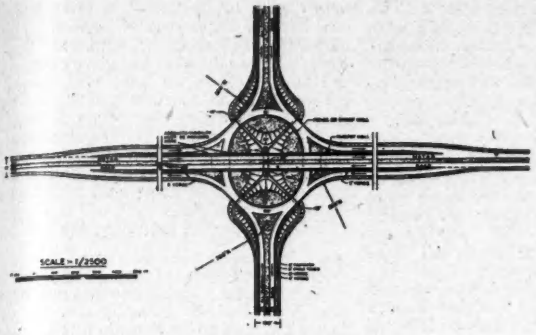



**Fig. 1.**—Flyover roundabout junction—intersection of motor road with dual carriageway all-purpose road equipped with cycle tracks.

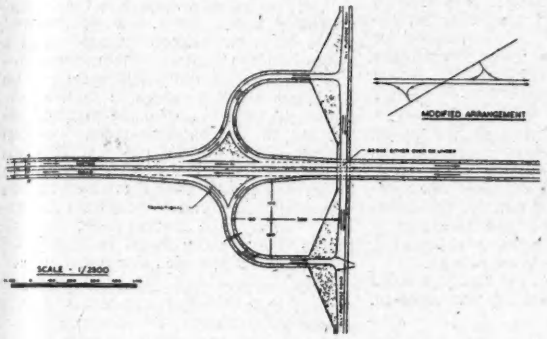



**Fig. 2.**—The basic type of layout for use at intersections where present and future traffic is light and a right-hand cut on the all-purpose road is not of serious consequence. The choice of overbridge or underbridge will depend on local conditions and the vertical alignment of the motor road. The precise shape of the junction can obviously be varied to suit local conditions but the dimensions indicated should be regarded as a minimum. It is intended that the two large areas (between the slip road and the motor road and the all-purpose road) should remain in normal use (e.g., agriculture).

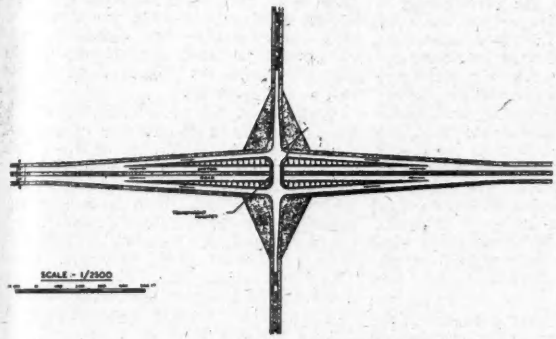



**Fig. 3.**—The subsidiary type of layout for use at intersections where present and future traffic is light and a right-hand cut on the all-purpose road is not of serious consequence. It should be used only where (a) the space available does not permit of the adoption of the layout shown in Fig. 2; (b) the all-purpose road passes over the motor road; and (c) a satisfactory sight line can be provided along the all-purpose road. The precise shape of the junction can be varied to suit local conditions.
When the all-purpose road is subject to a 30 m.p.h. speed limit, the sight line can be reduced to one-third the length required in open country.

**Where Roads Need Improvement.**

Quite apart from the construction of new roads, our existing highway system, much though it has been improved in the last 30 years, still offers a vast scope for improvement, especially in alignment and width. In the blitzed towns and in other urban areas opportunities can be made without wholesale demolition of expensive property so to improve the layout of the streets that the risks to pedestrians are very much reduced and the movement of traffic greatly facilitated.

In rural areas improvements are more easily undertaken as by far the most frequent opportunities to increase safety in location and alignment are by improvements in sight lines at road junctions, on bends, hump-backed bridges, and in widening at bottlenecks where the road is narrower than the adjoining section.

The maps which are kept by the police showing where accidents occur on the roads in their areas are fruitful in focussing attention on sites where improvements or controls are needed promptly.

One should not wait for accidents to occur before improving a road, though if men and money are scarce it will inevitably and properly happen that a higher priority is given to those places where the maps show accidents have occurred.

Apart from the accident record of a street, yardsticks are required to measure the necessity for road improvements—when should it be widened; what is a blind corner; when is a bend too sharp; how slippery is a slippery road, and so on.

**Road and Junction Layout.**

In a rural area, if the number of vehicles using the road during 30 separate hours in the course of a year is up to 300, a single 22-ft. carriageway is sufficient; for 300 to 600 vehicles an hour, according to the speed which is reasonable for the road, a 30-ft. carriageway is necessary; and over about 600 needs a twin carriageway—twin 30-ft. carriageways if the traffic is over 1,500 an hour. In urban areas the capacities are 20-30 per cent. higher. For roads leading to some seaside resorts the capacities of the different road widths would be reduced by a third to make better provision for the excessive peak at the week-end. On the international routes which are being discussed by U.N.O., and of which there will be four or five in this country, the capacity of a 22-ft. carriageway at 60 kilometres or 37½ miles per hour is taken as 400 vehicles per hour, but our standards of construction are higher than those which can be applied in all countries, and we must cater for a speed of 50 miles per hour, which reduces the capacity of the 22-ft. road to the 300 vehicles first mentioned; on wider or twin-carriageway roads higher speeds are allowed for in the design.

A street should not be widened so that vehicles can park on it, for standing vehicles in a busy thoroughfare blind the view between the driver and the pedestrian coming on to the carriageway.

Twin carriageways must plainly be safer than a single carriageway, but the cost is very heavy; the best becomes the enemy of the good—in that lies much of the justification for a carriageway 30 ft. wide when traffic outgrows the two-lane road, because, if improvement is to wait for the provision of twin carriageways, any improvement will be long delayed and the length of road treated will be

far less than that on which, for the same money, a widening to 30 ft. can be effected and an improved alignment obtained at the same time.

Those standards assume that the vertical and horizontal alignments of the road are up to a good standard; for example, that a driver can see ahead a distance appropriate to the speed value of the road—if the road is a single carriageway and one on which it would be reasonable to proceed at 50 or 60 miles per hour, that distance would be about 250 yards, but if 30 miles per hour is the maximum speed a forward sight line of 80 yards is necessary. On curves one should be able to see oncoming traffic at those distances.

Super-elevating or banking up the outside of bends and eliminating excessive camber on straight lengths of road have the effect of widening the carriageway, for drivers can use the whole width with an increased feeling of comfort and safety and are not tempted to go over the white line on to the wrong side of the road; even in built-up areas, banking should be provided where the level of entrances to buildings permits, but the amount of banking will be less than on the open road and should not exceed about 1 in 24 owing to the inconvenience which steep cross falls occasion to the loading and unloading of vehicles at the kerbside.

The proportion of accidents which occur at road junctions is a clear indication that special attention should be paid to their design—in built-up areas 46 per cent., and in non-built-up areas 22 per cent., occur at junctions. The provision of a good sight line is the first consideration, but by itself is often not sufficient; some form of control is required which either keeps vehicles in a definite path or to a definite time cycle. At very few road junctions in the open country is the view across corners sufficient without special work involving the acquisition of land so that from a point in the side road 50 yards from the carriageway of the main road a driver can see main road traffic 110 yards away. When the speed value of the road is 30 miles per hour, one-third of those distances suffices, and in the central area of a town where cars rarely go faster than 15 or 20 miles per hour lower standards are reasonable. In a built-up area the radius of the kerb at a street junction should usually be 35 ft., so that lorries and buses can get round without encroaching on the opposing traffic stream.

Junctions on all-purpose roads should be designed so that speed must be reduced before joining or crossing other traffic streams.

Where space permits, a roundabout is a most efficient safety device for passing traffic through a road junction at speeds below 30 miles per hour, but so that vehicles may have space in which to weave, that is, pass in front or behind other vehicles in the roundabout to reach the particular road each one requires for its destination, it is found that a central island about 180 ft. diameter is the minimum size which will pass the traffic converging on it from first-class roads if one of them has twin carriageways; 150 ft. diameter is enough if there are four roads only and all have single carriageways not wider than 30 ft.; smaller roundabouts down to 100 ft. diameter are for urban areas or lightly trafficked roads in the country, but the staggered crossing is more frequently suitable for the latter, especially if the side road joins the main road on a skew, and then the side road would be turned so as to join the main road almost at right-angles with a curve of 200 ft. radius. Where there is a large number of pedestrians, subways under the roundabout are a great advantage, but the cost is so high that all too often they have to be omitted—it is another case of the best being the enemy of the good.

When our new by-passes or motor roads come into being, the flyover junction and the flyover roundabout will be familiar sights; in these the main road traffic has an uninterrupted fast passage over or under all other traffic, and vehicles from the side road will have space in which to accelerate before joining the main fast traffic stream, so that the danger introduced by a slow vehicle coming on to a fast route can be lessened—the more uniform the speed of vehicles in the same direction, the safer it is for all concerned. Flyover roundabouts such as that in Fig. 1 are very costly—about £140,000 each—too expensive for use except where the traffic on all the roads at the junction is specially heavy. Some more economical forms of flyover junction are shown in Figs. 2 and 3.

There is little justification for paved footways in rural areas except in the vicinity of villages—but a level verge should be provided in all cases when improvements are carried out, for this helps visibility on bends and also assists snow clearing as it is a space on to which snow can be thrown by the snow plough.

Separate cycle tracks are rarely justified unless over 500 cycles a day are expected.

**Access to the Road.**

Every point at which vehicles or pedestrians can get on to the carriageway is an addition to the dangers of the road layout. We should, therefore, aim at reducing the number of road junctions and the number of places where private premises have access to an important route—this is best done by ensuring that buildings have access to side roads only, but ingenuity is necessary to plan the layout so that the main route is not flanked by unsightly back premises. As a last resource, if the limitations of the site prevent anything better, a service road should be provided along the main road and then an unclimbable fence should be put between the service road and the main carriageway.

To prevent skidding, the road surface must be kept clean—grease or mud is very treacherous, but a clean wet road can be slippery if the rubber tyres are smooth and the road has a fine finish because the film of water under the tyre has no place into which it can escape, either in the pattern of the tyre tread or in the road surface. Tests show that as a general rule a sandpaper finish is safe when it is wet and clean, but when it is wet it looks slippery. Road surfaces must not only be safe, they must also appear to be safe, for otherwise some drivers become nervous and the nervous driver is not a reliable driver if anything happens. A deep-textured surface with a suitable type of stone is the best, for wet or dry it looks safe and whether the rubber tyre is new or worn smooth it requires more force to push the vehicle with the wheels locked over a deep-textured surface than over one with a fine finish. If, when travelling at 30 miles per hour, that force is less than one-third the weight of the vehicle, the road is too slippery.

In designing the thickness of road crust required to carry the wheel loads permitted by the regulations, it is now usual to rely on a method of calculation developed in the United States during the last eight or nine years. We have had little opportunity for testing it in this country yet, but the Experimental Section of the Ministry of Transport, with the Road Research Laboratory, are developing an instrument which we hope will simplify the tests of the bearing capacity of the subgrade on which the design is based; we include, as in other engineering design, a factor of safety so as to allow for variations in the moisture content of the soil and the passage of occasional exceptional loads such as transformers up to weights of nearly 200 tons, including the vehicle.

**Road Furnishings.**

As a result of recommendations by a branch of U.N.O. sitting in Geneva, the various warning signs surmounted by the red triangle, which have been familiar features on our roads for many years, will, if the Minister approves the change, gradually appear in a new international guise—a large yellow triangle with a symbol in the centre. Other items contribute to the amenity and safety of the road and make it agreeable to live with. Amongst these are roadside planting, the lopping of overhanging trees, well-kept hedges which do not obstruct footways in the town nor the sight across corners or on bends, nor hide the view at places where there is room to construct a draw-in to enjoy the countryside; at such places it materially helps road safety if space can be provided for a car park.

The engineer can combine profitably with the horticulturist who is also a landscape architect, so that planting is not only an ornament to the road but a safety measure which reduces the glare from headlights on bends and at roundabouts, and relieves the monotony of long, new roads—the German autobahnen suffer from this defect; drivers find the monotony makes them sleepy, and accidents occur.

White lines are most valuable aids in keeping traffic to its own side of the road—there is still a difference of opinion as to whether a 30-ft. carriageway should be divided into two lanes by a central white line or into three lanes—perhaps the right answer is that a central line is preferable where standing vehicles or junctions occur often, in short, where there is a speed limit; and three lanes are better everywhere else except at road junctions and on sharp curves where the central white line is safer.

Building safety into a road involves planning, but also a multitude of other matters, some of which depend on the nature of the traffic and the character of the district. In areas liable to mining subsidence, special precautions are necessary for the safety of the road and the travelling public—large bridges or tunnels must be given complete underground support, and solid stowage should be provided under small bridges and sections of road liable to serious flooding or inundation by the sea. Arches should not be used for bridges in such areas—beams are preferable; skew spans and continuous structures should be avoided; reinforced concrete is better than brickwork or masonry; wide bridges should be constructed with a complete longitudinal joint through the supports and deck, and small chambers for lifting jacks should be built under the main girders. In all areas draw-ins are a help at bus stopping places, but they should not be sited opposite each other nor placed so that a motorist's view of persons alighting is too short for safety; they ought not to be located on bends—this is particularly true in country districts where there is no footway.

# CORRESPONDENCE

## Architectural Assistants' Salaries

To the Editor of *The Builder.*

SIR,—Regarding your leading article in the June 3 issue of *The Builder*, it may be of interest that the rates of consolidated pay negotiated under the Works Group Scheme by the I.P.C.S. for Government departments such as the Ministry of Works, Air Ministry, War Department, etc., are :—Recruitment Grade, £475 (age 25) × £25—£750; Main Grade, £750 × £25—£1,000; Senior Grade, £1,050 × £35—£1,270, Directing and Superintending Grades, £1,320 × £50—£1,520 and £1,600 × £50—£1,800.

In addition there is an application to the Treasury for an overall increase of 15 per cent. over these rates owing to the rise in the cost of living.

"JUDEX."

Surrey.

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To the Editor of *The Builder.*

SIR,—The leading article in your issue of June 3 on this subject, and also the correspondence, interested me very much. We old chickens had a very hard life in the past, without the opportunities which occur to-day. I can recall working hard as a youngster—fourteen hours a day and little in return. I can recall scraping enough funds to pay a qualified architect £240 so that I might receive in return three years' tuition in his offices. I can recall starting out in the open labour market with a few sharp pencils, searching for jobs. I can recall applying for a job at the Guildhall, queueing up with 24 others, picked out of 310 applicants, and being compelled to face about 90 men and undergo a severe oral examination. I was one of six selected to face a similar ordeal a month later. I was one of two to sit the ordeal again, and finally to be told, after four months, that my knowledge was excellent, but that my age was against me. I can recall applying for another post that took 3½ months to decide; fortunately, I was the favoured applicant here, and the commission—to design a 1½-million cu. ft. factory—put me on my feet. I can further recall establishing myself on my own account, soon after the factory was completed, in Moorgate, which took every penny I possessed; in fact, for two years I had to ask the telephone operator to be so kind and give me a ring over the telephone twice a day, to enable others in the building to hear that something was taking shape in case they should think I had committed suicide. When the crisis came in 1931, and the balloon went up, I went with it, and back I trudged into the labour market with a fat roll of drawings under my arm in search of a job, and when I got one the hands of the clock appeared never to move. The system then was: "Work my hours or go elsewhere!"

Since I have been a private practitioner I have to be careful and save the rent; I have to put aside sufficient to meet my office expenses; I have to make sure that the wages are available; to provide that all holidays are paid for; to see that the staff get their annual holidays with full pay; to make sure that their salaries are paid when in sickness; see that they get a Christmas bonus; to prepare myself when the occasion arises for increase in salaries; to meet the expenses required under N.H.S.; and, if there is any left, I then think about myself. Many of us are undergoing hard times, but that does not mean to say that assistants have not a case; they have, and I feel sorry for them. It is hard lines for those who have found the time to earn the right to put rosy letters behind their names to find that the reward in remuneration is less than that paid to journeymen.

The system, of course, is not due to the particular institute to which they belong, but more to the various authorities who sponsor low salaries because wages have to be paid out of rates. I am acquainted with the salaries they pay through members of my staff who have left London boroughs to come here for a much higher salary. The fault lies, in my opinion, in the profession not getting together. The A.R.C.U.K. is a very valuable centre but is very much handicapped, and the move must come from the Mother Institute. She is a very ancient Institute of 126 years standing. The "get together" policy would be very advantageous to assistants, to private practitioners, and to the profession as a whole. The policy, as constituted by the Mother Institute, should be to try to teach these young men who have given their valuable time to gain honours in the profession. This would doubtless encourage the making of a few more Scotts, Lutyens, Webbs, and others of their kind. Such a policy would not interfere with the duties of the official architect if the system were extended by which official architects collaborate with private architects. A system must be wrong by which attenuated private enterprise is expected to provide, through taxation, funds for the enormous staff employed by the State. It is the heavy expense of such preparations that is causing high taxation from which assistants in the profession, among others, suffer, and the making of a "scale of salaries" is not the remedy, but rather the "get together move" to encourage help from every available source to make these young fellows establish themselves on their own account, so that architecture shall revert to the private practitioner and so relieve the heavy taxation which the public is bearing.

W. MACDONALD.

16, Chiswick-lane, W.4.

## Architectural Criticism

To the Editor of *The Builder.*

SIR,—I see from your issue for June 3 that there has been some more philosophical theorising at the Architectural Association about architectural criticism, a subject which seems to have an extraordinary fascination for the younger members of the profession. But there appears to have been far too much talk about theory and far too little about practice, though I note that one speaker did in fact urge that there should be "more criticism of real buildings."

If contemporary architecture is to become a normal subject for criticism, like painting, literature, the drama and the cinema, then certain obvious conditions will need to be fulfilled. First, it is important to remember that normally there is no invitation to criticise, and therefore it would be wise to obtain the consent of the building owner and the architect. In the case of official architecture, which has become something of a public cockshy, this precaution may, perhaps, be safely dispensed with. Then as to the scope of criticism, architecture is more than surface aesthetics. Criticism of elevations, though of interest, is not enough. If justice is to be done not only to the building but to the architect, the practical conditions under which the work was carried out should be stated and examined. We should be told about (1) the site and its restrictions, if any; (2) the client's wishes; (3) cost; (4) available materials; and we should be given some idea of the building's success, or otherwise, as a planned arrangement of space, its structural efficiency, and so forth.

Then we should need to know the qualifications of the critic. It is doubtful whether practising architects would care to criticise the work of their fellow practitioners, and criticism would probably become the preserve of literary men who themselves might be incapable of designing a respectable dog kennel. I am aware of Dr. Johnson's dictum on this point. "Sir," he said (I am quoting from memory), "I may not be able to make a table but I know a good one when I see it." But in Dr. Johnson's day there was little difficulty in telling good work from bad. To-day, with no accepted standards, criticism is apt to be no more than personal opinion.

There are other points too numerous to discuss here, but it is not out of place to inquire where this criticism of contemporary architecture is to appear. With the present state of the law of libel I doubt whether any editor or newspaper proprietor would be prepared to take, without safeguards, the responsibility of publishing damaging criticism, and such it would almost certainly be, at least in part. There is always the B.B.C., but even that wealthy body does not normally allow criticism of contemporary architecture. I feel that we have had more than enough theorising about criticism. What our ardent young critics should now find out is whether the senior established members of the profession are willing to submit their works to frank criticism in the public Press. This might well be the subject for discussion at another meeting of the A.A.

HARI BONA.

## Housing Costs

To the Editor of *The Builder.*

SIR,—One hears to-day of the high costs of building houses. No one, however, seems to notice that these costs do not all strictly come under the heading of building. We recently priced a job that specified fitted wardrobes, toy cupboards, fuel cupboards, refrigerator (and cupboard), wireless aerials, etc.; also sowing of grass seed on prepared soil and grassing to approaches and verges. If these furnishing and horticultural items were deleted the actual building costs would be at least 20 per cent. cheaper.

J. A. FLOWERS,
Director.
Associated Builders (Streatham), Ltd.
S.W.16.

# COMPETITION NEWS

## Industrial Art Bursaries

THE Council of the Royal Society of Arts is again organising an Industrial Art Bursaries Competition which is to be divided this year into sections for the design of: carpets; domestic solid-fuel-burning appliances; dress textiles; electric-light fittings; footwear; furnishing textiles; leather goods; wallpaper.

A bursary of £150 in value is offered to the winning candidate in each section (in the dress textiles section two bursaries are offered).

The primary purpose of these bursaries is to allow successful candidates to broaden their knowledge and experience by travel abroad and the study of foreign design, or, in certain cases, to obtain art training or industrial experience in this country. The competition is open to full-time, part-time and evening-class

students between the ages of 17 and 30 on October 1, 1949, who intend to take up industrial design as a career, and have studied for not less than one term since July 1, 1948, at an art, architectural, technical, or other college or school approved by the Society for the purpose of the competition. Entry in the domestic solid-fuel-burning appliances section is also open to any draughtsman, clerk, or similar person, within the same age limits, already engaged in the solid-fuel-burning appliances industry, provided that his application is sponsored by the Coal Utilisation Joint Council.

The following are among the juries for the various sections:—*Carpets*: Mr. W. H. Ansell, M.C., P-P.R.I.B.A. (*Chairman*); Mr. Ashley Havinden, R.D.I.; Mr. J. H. Mellor. M.S.I.A., and Mr. T. Marchetti; *Domestic Solid-Fuel-Burning Appliances*: Mr. A. C. Bossom, F.R.I.B.A., M.P., (*Chairman*); Mr. Wells Coates, O.B.E., B.Sc., Ph.D., R.D.I., F.R.I.B.A.; Mr. F. Bowen, and Mr. W. S. Shirra; *Electric-Light Fittings*: Dame Caroline Haslett, C.B.E., Comp.I.E.E. (*Chairman*); Mr. A. B. Read, R.D.I.; Mr. V. W. Dale, and Mr. F. Winstanley; and *Wallpaper*: Mr. F. A. Mercer (*Chairman*); Sir Francis Meynell, R.D.I.; Mr. A. R. Wildey, and Mr. Henry G. Dowling, P-P.I.B.D.

Details of the competition can be obtained from the Secretary of the Royal Society of Arts, the principals of the schools and colleges concerned, and the Secretary of the Coal Utilisation Joint Council. The closing date for the receipt of entry forms is August 1, 1949.

## ARCHÆOLOGY IN SHROPSHIRE

### Proposed Survey of West Midlands

MEMBERS of the Shropshire Archæological Society heard an outline of the plans for a proposed archæological survey and gazetteer of the West Midlands, and something of the contribution it is hoped they will make towards this work, at their annual meeting, held recently in Shrewsbury Castle. MR. C. S. WOOLLAM, chairman of the Society's council, presided, and the principal speaker was MR. K. D. M. DAUNCEY, of the Department of Archæology, Birmingham University, from whom the meeting received information about the proposed survey and gazetteer.

MISS H. M. AUDEN, hon. secretary, in the annual report, said during the year the society had been much concerned with the old buildings in the town and county. Attention had been called to the necessity for care of the remaining fragment of old St. Chad's, Shrewsbury, which had been in danger from mischievous hands. The society had been in touch with the Society for the Prevention of Ancient Buildings, which had a watchful eye on several of the more notable ancient houses, including the early work of Wattlesborough Castle.

MR. C. S. WOOLLAM said it was the society's seventy-first annual meeting. Over that period they had built up what he thought deserved to be described as a really monumental record of scholarly research into archæological, ecclesiastical, and topographical affairs and other matters.

In his address on the proposed archæological survey and gazetteer on the West Midlands, Mr. Dauncey explained that the proposals emanated from the Birmingham University. In their proposals they were concerned almost entirely with prehistoric and pre-Roman archæology. Some of his audience, particularly Miss Chitty, were pioneers of the work which they were endeavouring to help forward. There were three important proposals which they had put forward from the university and which had already been discussed at a conference of interested persons at Birmingham. The first was for the establishment of some measure of co-operation of archæological field work within the counties of the West Midlands — Shropshire, Herefordshire, Warwickshire, Worcestershire, and part of Staffordshire—from the point of view of accidental finds, exploration for all photography, and the examination of photographs and problems of that sort.

Secondly, they would like to see carried out by co-operative work, the compilation of a gazetteer, archæological bibliography of all published archæological material of the West Midlands. That would be a considerable task for individuals, and they thought it could best be done by co-operative effort. A large part of the task was going to be almost a formality because Miss Chitty had agreed to the publishing of much of the material which she had collected in the West Midland counties. Thirdly, they proposed, with the co-operation of the counties, to provide some assistance in the form of groups for discussion, and, to some extent, teaching through the university's department of extra-mural studies. That, to some extent, would be experimental.

On the education proposals, MR. DAUNCEY outlined work already being done in some areas in the way of courses in archæology and through extra-mural groups which had started on a three-year programme with ample scope for people who knew a lot about their districts to contribute. Such groups would actually do field work, and not just have classroom activity. In Shropshire, Shrewsbury was thought to be a place where it might be possible to start a three years' group right away. He was not sure that they could organise such a group immediately, but they hoped they would be able to start some sort of extra-mural activity in the near future which would be a movement in that direction.

MISS L. CHITTY moved a vote of thanks to MR. DAUNCEY, and in seconding, MR. J. R. W. WHITFIELD (Oswestry) said Miss Chitty had done a tremendous amount of good work, but before that the archæology of Shropshire had been neglected. Particularly was this so in regard to excavations. They had a wide area which had not been touched by way of excavation. It was interesting to know that in this new scheme they had with them the power of the university and the interest of the Department of State.

Through the generosity of LORD HARLECH, a very fine site had been given to the office of works, on the understanding that they would excavate it in the near future. They hoped that in a year or two excavations would begin at Oswestry, which, he understood, would be of great importance. That meeting, said Mr. Whitfield, marked the opening of a new area in which the pre-history of the county would be studied, surveyed and published, so that no longer would Shropshire appear on archæological maps as a desert. Why it did so at the moment he did not know. In his own district of Oswestry there was a large and important Iron Age fort, and with that and others in other areas, they had the forts which guarded the whole of the north Shropshire plain, on which he felt there were a number of prehistoric villages. In the Melverley and Kinnerley districts, also, they could see each year gravel islands which always appeared above the water, and he thought that investigation of these islands would probably produce much interesting prehistoric material.

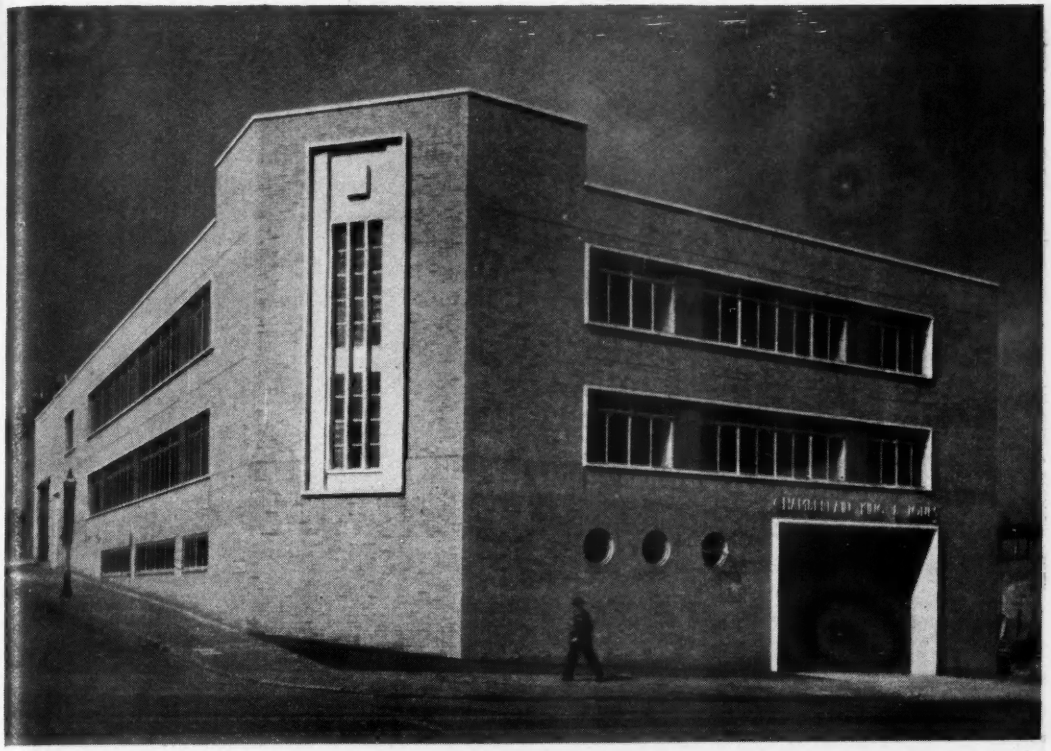
MR. WHITFIELD said he was convinced that there was widespread interest in prehistory of the county. The recently founded Oswestry Society was having difficulty in coping with the enthusiasm of its members. Now they had the prospect of a lead from a learned body to educate them in this branch of their activities the results, he was sure, would be amazing.

## BOOK REVIEW

OLD CHURCHES AND MODERN CRAFTSMANSHIP. By Alban D. R. Caroe. (London: Oxford University Press.) Price 18s. net.

"DURING THE YEARS while I was studying architecture, first as a boy's hobby and then as a vocation," writes Mr. Caroe in the preface to this book, "I became more and more impressed by the width and richness of the information stored away in my father's brain on a host of unusual subjects centred round the care of mediæval churches. Traditional lore about the dying methods of good craftsmanship, unexpected tips on the constructional side of archæology, illuminating flashes on the principles underlying the stability of complicated masonry structures whose understanding must always be partly intuitive—all these exercised a growing fascination upon me. Moreover, the longer I studied the more I realised how little of this information can be gained from modern text-books, and how essential its possession is to the proper care of our old churches." The author, therefore, decided to write this book, partly as a memorial to his father, the late W. D. Caroe, since it is based to a considerable extent upon his work, but also to record the results of research and experience which have occurred since his death.

The book is comprehensive in its scope, consisting of twelve chapters covering general maintenance and diagnosis; foundations; the structure of walls, arches and vaults; wall surfaces; structural timbers; roof coverings; belfries, bell-frames and bells; other structural repairs and decorations; heating, lighting and scientific equipment; and the planning and arrangement of a church and its furniture, accompanied by many clear technical drawings as well as photographic illustrations. It is probably the most important work on the conservation and repair of old churches since the late A. R. Powys published his "The Repair of Ancient Buildings" in 1929. In addition to setting forth very clearly the theory of the subject, Mr. Caroe describes and illustrates numerous successful examples of repair and preservation, some of them carried out under difficult, even hazardous conditions. The aim in all such work should be to disturb the fabric as little as possible and to leave the minimum evidence of attention. All too many of our old churches have suffered from failure to observe these principles. There is now little difference of opinion among the experts about good technique, and Mr. Caroe, in revealing the *arcana* of his father's and his own methods, has done a most useful service, particularly at a time such as the present, when so many of our old churches are urgently in need of sympathetic attention. G. J. H.



# A FACTORY AT BIRMINGHAM

LEONARD J. MULTON, F.R.I.B.A., F.I.A.A. & S., ARCHITECT

THIS factory for Messrs. Chamberlain King and Jones, Ltd., at Holloway Head, Birmingham, is a replacement of premises destroyed by enemy action. Two storeys have been omitted and the accompanying illustrations do not show the building in its final form.

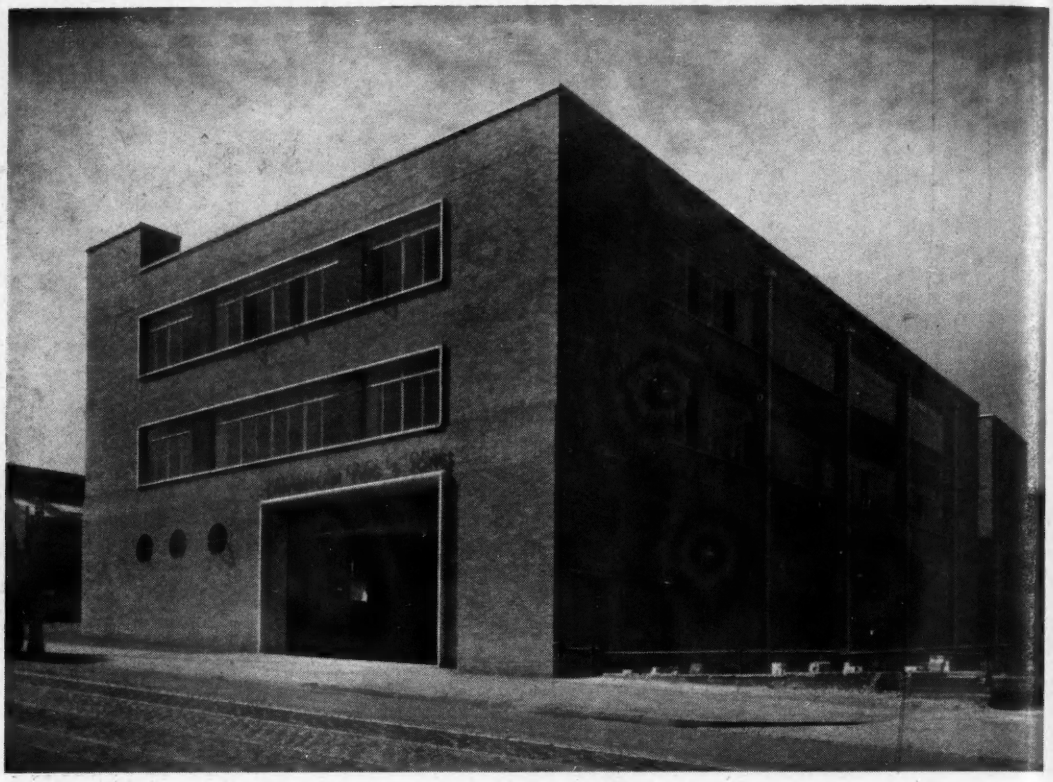
The building, which is used for the storage of furniture and the manufacture of bedding and furniture, is steel framed with brick cavity walls, buff-coloured sand-faced bricks being used. The stone surrounds to the windows and copings are reconstructed Portland stone, while piers between windows are in a bright red sand-faced brick. Three sides of the factory consist almost entirely of window space, the width of the largest windows being 18 ft. 3 in. Main entrances are provided with steel roller shutters, so designed to enable the openings to be clear of all obstructions.

Floors internally are pre-cast cement units to withstand a load of 1 cwt. ft. super. On the ground floor the van stand and loading deck are separated by a partition wall provided with roller shutters. The van stand can thus be isolated whenever desired. The floor to the loading deck is asphalt to prevent damage to furniture during loading and unloading.

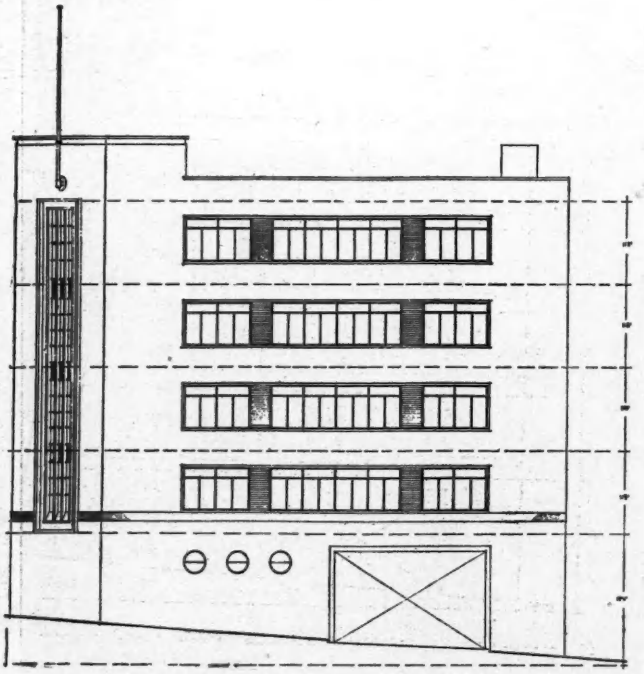
The upper floors are used for warehousing and manufacturing purposes

**Detail of entrance.**

E



**The factory, showing entrance to van stand.**



**Elevation of building as it will be completed. Our photographs necessarily do not show the building in its final form.**

and wood blocks are laid on the second floor so that carpets can be laid out and planned.

The heating system, designed to utilise the suspended floors as heat radiating surfaces, is of accelerated low-pressure hot water, automatically oil fired. The system has been so designed to enable waste products to be incinerated; when this process is in operation, the oil firing is automatically cut off. Domestic water heating is by means of thermostatically controlled electric storage cylinders.

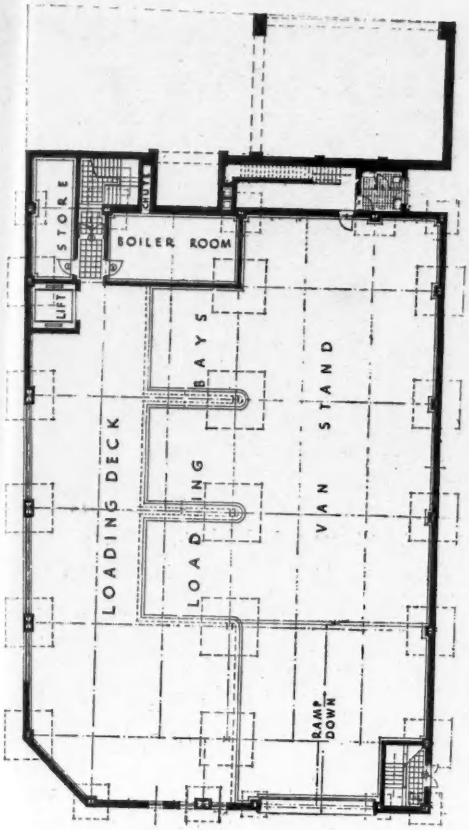
All floors are provided with high pressure mains and fire fighting apparatus and certain portions of the building, where there is a high fire risk, are isolated by fire-proof doors.

The quantity surveyors were Messrs. Reuben Holbrow and Partners.

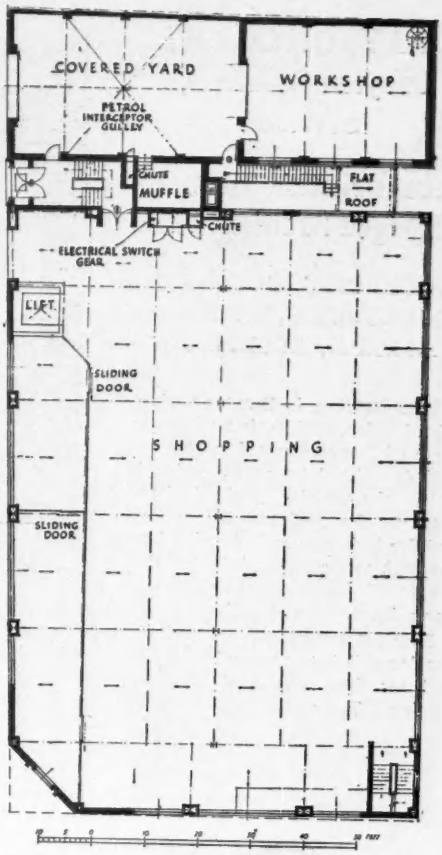
The general contractors were Messrs. T. Elvins and Sons, Ltd., of Birmingham, and Mr. J. Cox was the general foreman.

The principal sub-contractors and suppliers were:—

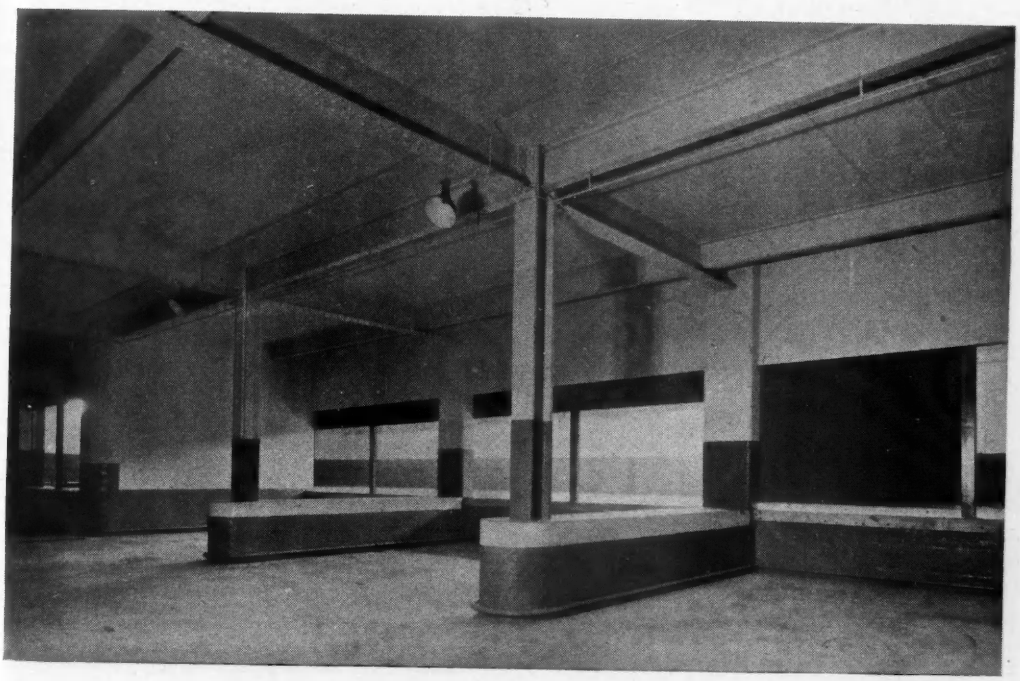
Structural steelwork, Charles Wade and Co., Ltd.; pre-cast floors, Siegwart Floor Co., Ltd.; artificial stone, Empire Stone Co., Ltd.; facing bricks, Proctor and Lavender; common bricks, Burbury Brick Co., Ltd.; metal windows, John Gibbs, Ltd.; roller shutters, Mather and Platt, Ltd., and Roller Shutters, Ltd.; lift, Express Lift Co., Ltd.; asphalt, Birmingham Asphalte and Paving Co., Ltd.; granolithic, Empire Stone Co., Ltd.; glazing, Pierce and Cutler; heating, Norris Warming Co., Ltd.; balustrades, Birmingham Guild, Ltd.; electrical works, Walker Bros., Ltd.; screens, Crittall Manufacturing Co., Ltd.; fireproof doors and fire hydrant, Mather and Platt, Ltd.; pitched roofs, Robertson's Protected Metal; sanitary goods, Griffin Fire-Place and Sanitary Fittings, Ltd.; wall and floor tiling, Craven Dunnill and Co., Ltd.; w.c. partitions, Henry Hope and Sons, Ltd.; and ironmongery, K. S. Neale, Shustoke.




Ground-floor plan.




First-floor plan.



The van stand, loading bays and deck.

# "DRAYTON COURT" Drayton Gardens, S.W.10

## Reconstruction of War-Damaged Mansion Flats

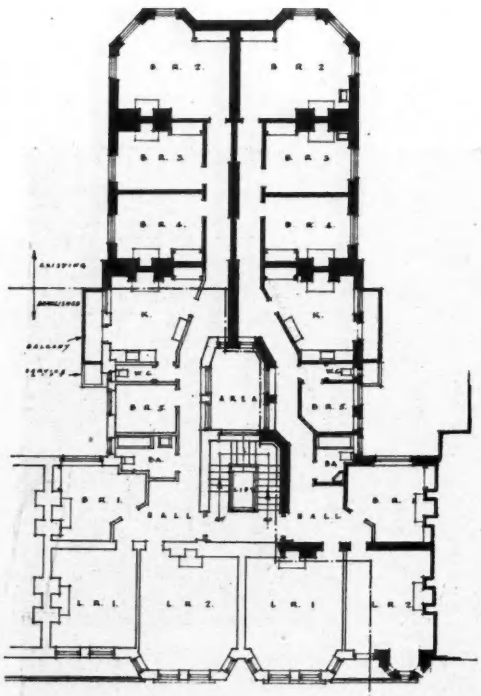
WOODROFFE, BUCHANAN AND COULTER, FF.R.I.B.A., A.M.T.P.I., ARCHITECTS

The main staircase and lift lobby.

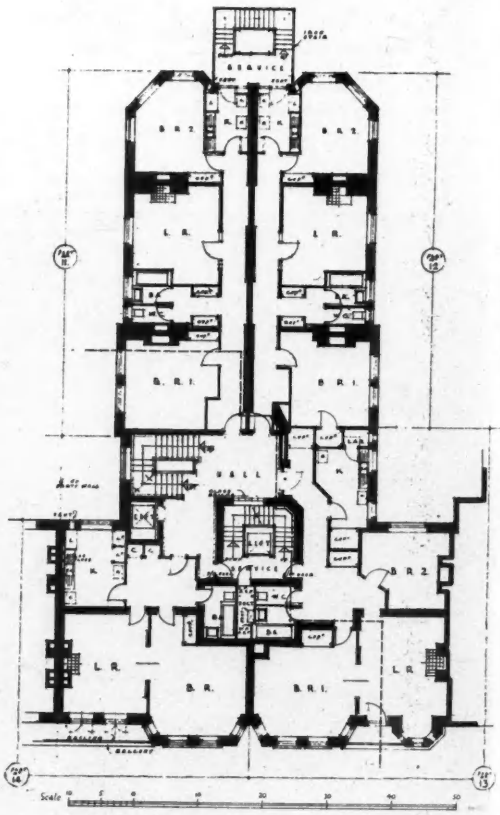
THIS building, in Drayton-gardens, London, S.W.10, is a wing of a block of flats constructed in 1908 and half demolished by enemy action in 1940. The old plan consisted of two flats per floor, of two living-rooms and five bedrooms each, running from the back to the front of the building. Means of fire escape was generally non-existent.

Each flat had an independent boiler for domestic hot water and both open and gas fires were used for room heating. The reconstruction consists of 25 flats of two bedroom, one living-room type, and one bachelor-type flat at ground-floor level. Central heating by low-pressure hot water heating has been included with oil-fired heating and domestic hot water boilers, located in basement heating chamber.

The new plan shows the former central light well now used for a main staircase lobby. The kitchens to flats at the rear are served from a steel



SECOND FLOOR PLAN. PREVIOUS TO WAR DAMAGE.



SECOND FLOOR PLAN. REINSTATEMENT.

**A flat facing Drayton-gardens.** *Above:* **View from bedroom.** *Below:* **View from living room.**

escape stair with central hand-operated service hoist.

Gas meter cupboards are arranged for external reading of meters.

The bathrooms and w.c.s to the front flats are internal and are provided with artificial air intake and exhaust giving three air changes per hour. A cat ladder is provided in the plumbing duct with access walkway for inspection and maintenance.

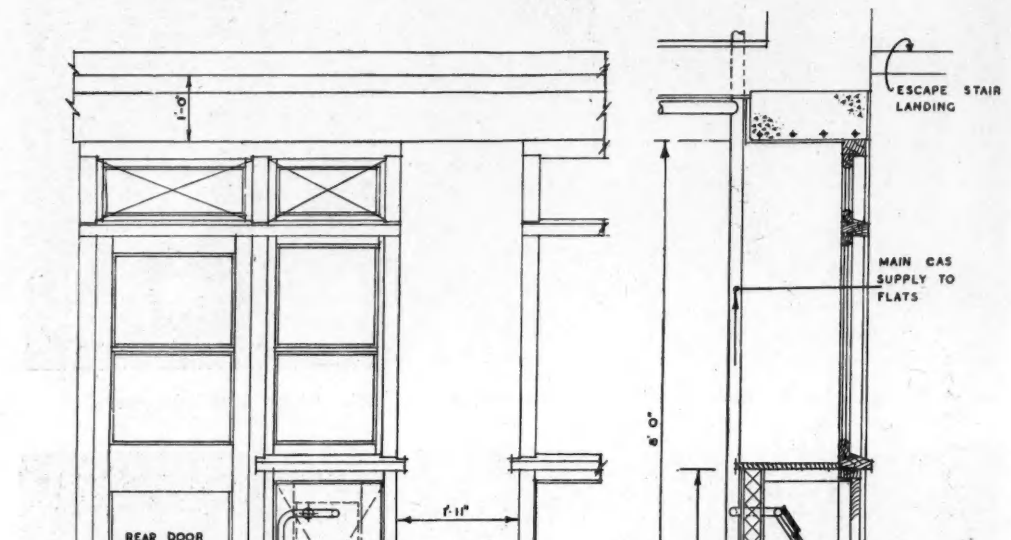
The reconstruction is in Building Act walls with floors of hollow tile bearing on walls or beams seated on concrete pads. New flooring is in deal boards on fillets to match former flooring. Flooring in front living-rooms is of pine blocks laid herring-bone fashion to match floor previously existing.

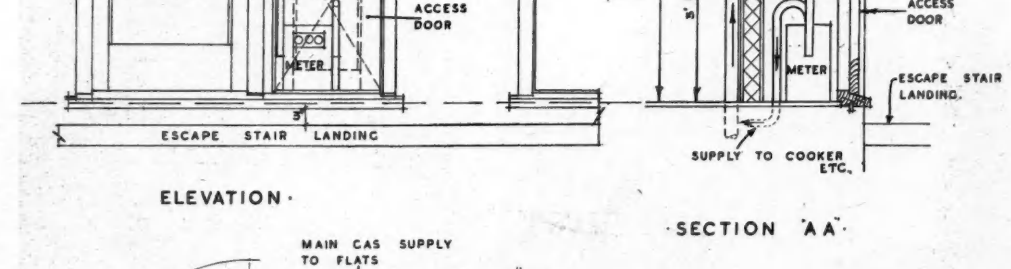
The elevations were required to conform with the existing other two sections of the original building, but some simplification of the balcony railing and stone dressings has been effected.

The architects were Messrs. Woodroffe, Buchanan and Coulter, FF.R.I.B.A., A.M.T.P.I., and Mr. A. J. Dyer was the chief assistant on the reconstruction.

The contract cost was about £52,000 and the general contractors were Messrs. John Lewis Building, Ltd. (Mr. Ridley, general foreman).

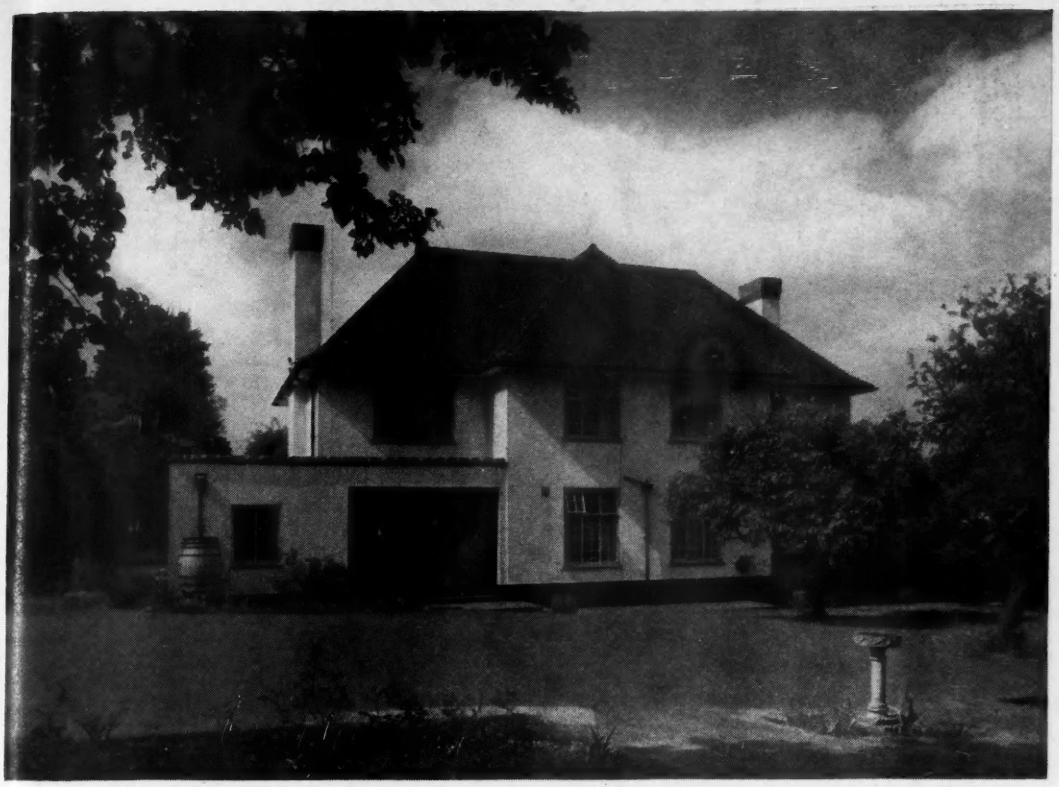
The principal sub-contractors were: Heating, lighting, plumbing and ventilation, Matthew Hall and Co., Ltd.; artificial stone, The Empire Stone Co.; structural floors, stairs and balconies, Diespeker and Co., Ltd.; kitchen fittings, West London Timber and Moulding Co., Ltd.; railing, G. H. W. Cashmore and Co.; sanitary fittings, W. N. Froy and Sons, Ltd.; ironmongery, Yannedis and Co.; plastering, W. Greenslade Bros.; and iron stair, Haskins, Ltd.




**Details of external access gas meter cupboard.**

**RECONSTRUCTION OF "DRAYTON COURT." WOODROFFE, BUCHANAN AND COULTER, FF.R.I.B.A., A.M.T.P.I., ARCHITECTS.**



**The garden front.** *Below*: **The entrance front.**

# "POND MEADOW," GREAT BOOKHAM

WILLIAM and EDWARD HUNT, F.R.I.B.A., ARCHITECTS

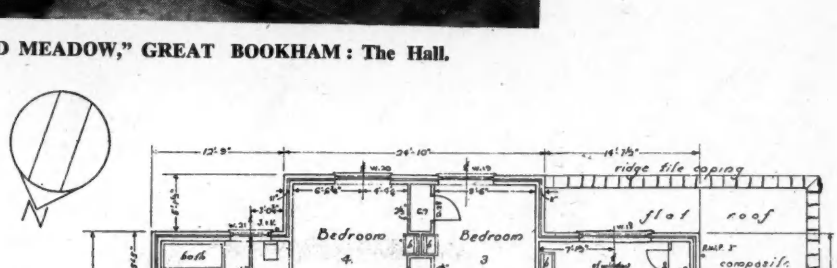
DESIGNED for Mr. A. E. M. Fortescue, this house was started a few months previous to the commencement of hostilities in 1939 and completed during the first year of the war, the attendant difficulties being well overcome by the builders, Messrs. Andrew West and Son, of Bookham, and the several specialists concerned.

The elevations were designed in simple manner with due regard to the locality. The cavity and exterior walls were finished with "Cullamix" stucco to a cream tone and a black base, and the main roof laid with hand-made plain red tiling. Windows are of steel with wood mullions, and doors of wood painted a light green tone. The front porch is formed with lintols and shaped posts of oak, supported on a hand-made red brick base, hardwood seats being provided on both sides flanking the doorway. The old boundary wall along the roadway, well built of cleft flints, was retained with slight alterations for two oak gateways. Cleft York stone paving was laid for pathways along the garden front.

The finish of the interior, owing to war conditions, was necessarily restricted to a simple treatment with oak floors to the rooms and some cork parquet and tiling to other parts. Walls were finished with water paint, and internal woodwork painted and enamelled, with flush internal doors and bronze fittings. The staircase has oak newels and handrails lightly stained and waxed. The accommodation includes kitchen and scullery-pantry, well provided with domestic stores and compartments detailed to owner's requirements. Heating is mainly by electric panels with an open fuel fireplace in the sitting-room.

Sub-contractors and suppliers were: Roof tiling, R. Y. Ames; windows, Luxfer Ltd.; hot water, plumbing and central heating, Air-Vent Heater Co., Ltd.; decorative tiling, A. Bell and Co., Ltd.; sanitary fittings, Goslett and Co., Ltd.; door fittings, Nettlefolds, Ltd.; electrical installation, H. Stansbury; flush doors, MacAndrews and Forbes Ltd.; cork parquet, Cork Installation Co., and photographs by Sydney W. Newbery.

**"POND MEADOW," GREAT BOOKHAM: The Hall.**




First Floor Plan




Ground Floor Plan

# WORKING CONDITIONS IN INDUSTRIAL BUILDINGS

## Some Design Considerations

OBSERVATIONS on working conditions in industrial buildings and their effect on the health of workers were made by MR. E. D. JEFFERISS MATHEWS, O.B.E., F.R.I.B.A., F.R.San.I., at the recent Health Congress of the Royal Sanitary Institute held at Brighton. Mr. Mathews' paper was entitled "Industrial Buildings and the Workers' Health," and we take the following extracts from his remarks:—

The type of work which is carried out in factories, heavy manual work, control of intricate machinery, quiet sedentary work, some work of a very dirty kind and some of a clean kind, means that generalisation as to what should be provided in the construction and finishings, lighting and ventilation of buildings cannot be made, but there are certain things which, although differing in detail, have a common basis for consideration when designing a new, or improving an existing, factory.

**Lighting.**

I believe that of all the aspects the one of good lighting is perhaps the most important, and good lighting does not necessarily mean only good natural daylight. Artificial light is equally or even more important, and a successful lighting scheme is not only connected with the penetration of daylight or the diffusion of artificial light, but it is immediately linked with such aspects as colour of walls and machinery and the surfaces of walls and floors, each of which has its own particular considerations, but is equally related to the whole conception of the design. In the space of this paper I cannot begin to discuss in detail all the many types of natural and artificial lighting that can be used. I want, therefore, merely to touch on one or two aspects of the problem, and in doing this I must stress again that generalisation is dangerous. Each condition of the factory, the type of work, the hours of work put in, the materials with which the work is concerned, all in themselves will affect the choice of a lighting scheme.

I suppose by far the majority of factories in this country derive their natural light from what is commonly known as north light or sawtooth roofs. There is undoubtedly something to be said for this kind of roof, but it has become to be used almost automatically and with little or no imagination and often it is very inappropriate. It is difficult to reduce high heat losses from such a roof. There is often a condensation problem. The quality of the light striking from the north is often grey and dreary, and really there are very many cases where there is no harm in letting in what little sun this country has to offer.

I want, therefore, to suggest to you that there are many other alternative types of natural lighting which deserve consideration before it is decided to adopt the old unimaginative north light. Do not be deterred by the view often expressed that any other form of roof lighting is more expensive. I can assure you that such a view is nonsense. There are many alternatives which are less expensive and, of course, there are some that are more expensive. The roof which often gives the most satisfactory diffused light derived from all orientations is the flat roof with upstanding panels glazed on the sides. Such a roof allows the workers to regulate their day to the time of the sun. This in itself has great value to people whose lives are so often totally divorced from natural things. There is a roof which is usually constructed in what is now known as shell concrete, light moulded curved concrete in which circular saucers of light can easily be introduced. Such a roof gives an even diffusion of light, although it is not always attractive to look up and see the bright spots, but it has its uses.

I am often surprised to find the belief that side lighting is not popular. This is largely due to the general design of the building not having been related to the machines and to the general planning arrangements inside. If the two are worked together, as they should be, side lighting, giving a large expanse of windows, has much to commend it over any form of roof lighting.

How often it is one finds a factory which is artificially lit by merely hanging a series of fairly high-powered tungsten lamps in long rows, each casting a dreary patch upon the machines and the floor and around them a sombre dirty blackness, and how seldom one finds a factory artificially lit so that there is an even intensity, making a room or a shed as if it were daylit. Surely a factory of this kind must, even if only indirectly, benefit the health of those who spend so many hours in it by this creation of efficiency and brightness.

Most of us now know what can be done by concealing the source of light, relying wholly on indirect reflection from the source. I do not for one moment say that such a form of lighting is correct for all factories, because although the result is nearly always pleasing there are cost factors that may eliminate it. But with the development of electric illumination and the introduction of various kinds of filaments it is frequently found that the principle of indirect lighting can, with economy and some compromise with direct lighting, be introduced to achieve equally good results.

**Flooring.**

I wonder how many factories expect to get the best from their workers by asking them to stand all day on a concrete floor or to sit all day on a wooden bench if their job is sedentary? Would the doctors agree with me that floor surfaces and the shapes and type of seats or stools are things of great importance to the health of the workers? I feel sure that in general far too little consideration is given to the nature of floors and to the design of benches and stools. We used to think that there were only two materials for floors: concrete or some hard substance like it, or wood. The fact that we are not an indigenous country for timber, and the recent economic circumstances, have brought us up with a jolt on the use of timber, and have shown us that there are many other composition materials that have all the qualities of wood, and sometimes greater qualities, if it is for a floor where wood would have been considered suitable in the early days. Equally we have found, if we study this question of flooring, that even in a factory where there is heavy traffic, trolleys or moving heavy weights so that it is believed that only the strongest hard floor can stand up to the wear, there are large areas which, if the building is properly designed in relation to that which goes on inside it, need have no traffic over them and the traffic can be confined to lanes made suitably durable. The lane can be planned between large areas of perhaps less durable but far more comfortable floor surfaces. It seems to me that a resilient floor, and one which has a high degree of thermal insulation, must in general be more healthy for those who stand upon it for long hours than a rigid and cold surface.

We often see illustrated catalogues of chairs and stools depicting the most frightful contortions of the skeleton frame of the human body when it sits on various objects and how, by knowledge of what the human frame does when it is asked to sit down, a wholly scientific and healthy poise of the body can be obtained; but although it is now becoming more general to realise that such a scientifically designed seat is necessary for such people as clerical staffs, I know of many cases where sedentary manual workers have to rely wholly upon a flat wooden surface, and yet they are sitting just as much as the typist and their health and efficiency is just as important to the industry of the country. There is a great field for a co-operative approach between the architect, the medical profession and the industrialist in this apparently quite minor aspect of a workroom.

**Colour.**

If we did not know that pillar-boxes are always painted red in this country, how irksome it would be to find a pillar-box in a locality which one did not know well. I have experienced this in foreign countries where they do not make their pillar-boxes so conspicuous, and it is very tiresome. Colour in a factory is not just painting or distempering the walls and painting the exposed part of the structure to preserve it. Surely it should be related to the mind by the simple system of colour signalling that we know from the pillar-box and the fire engine and things to do with fire or danger. I have seen a factory where all the machines were painted dull grey or brown or dark green, the colours in which they left the manufacturer. But I have seen that same factory after the machines had been painted light and bright colours and the various different parts of the machines picked out in primary colours, reds and greens and blues, so that at a glance one can distinguish the parts and functions from each other. This intelligent use of colouring of machines does two things, and both are beneficial to the health of the people working in association with them: it brightens up the whole factory and it is a visual aid to the operation of the plant. This latter is a factor also towards safety and reduces the risk of accidents to a worker whose task requires so little mental effort that he is apt to become careless as his mind is far away from what he is doing, and up go the accident rates!

It may be said that if we paint machinery a light colour it will get dirty. Equally, if walls are painted a light colour they will get dirty. I agree, but the dirt is not attracted to a light colour any more than it is attracted to a dark colour, and when it rests on a dark colour it is not seen and may be left there until it is blown by draughts into the worker's system and he goes sick. But when it rests on a light colour it is seen and is removed and there is no dirt to blow into the worker's system, so he does not go sick.

A final plea on colours. Those who have studied the psychological effect of colour tell us that the drab chocolate browns and dark greens so universally

used for dados and doors, and the hot mustard creams equally universal for the walls above the dados, have a dulling and depressing effect upon those who live among such colours. But we are also told by the psychologists that greys and clean, clear primrose yellows and pinks have the reserve effect. So, perhaps the most important of them all, does white. I make a strong plea for more white. Distemper is cheap; it is a maintenance job that can be carried out by unskilled men, large areas can be covered in comparatively few hours when the plant is closed down for the evening or for the week-end; I suggest that this low maintenance cost well merits the immensely satisfactory results that it gives.

# SOCIETIES AND INSTITUTIONS

## R.I.B.A.

### Examination for Building Surveyors

AT the R.I.B.A. examination for the office of building surveyor under local authorities held on April 27, 28, and 29, eight candidates presented themselves and the following were successful :—Mr. George H. Barnett, Mr. John Tugby and Mr. George R. Wynne.

## Architectural Association

### Leverhulme Scholarship in Architecture

THE Leverhulme Scholarship, tenable at the Architectural Association School of Architecture, London, value £1,000, which includes payment of fees and maintenance for five years, has been awarded this year to Mr. N. R. Grimwade (Cheltenham Grammar School and Cheltenham School of Art).

## Northants., Beds. and Hunts. Association of Architects

### Annual Meeting

THE annual meeting of the Northamptonshire, Bedfordshire and Huntingdonshire Association of Architects was held on June 1, at Shire Hall, Bedford.

The chair was taken by Mr. P. J. J. Panter, F.R.I.B.A., the President, supported by Mr. B. C. Deacon, F.R.I.B.A., a past-President.

The accounts and the Report of the Council on the work of the past session were presented and approved.

The new President, Mr. S. V. Goodman, L.R.I.B.A., Deputy County Architect for Bedfordshire, in his Presidential address said that he felt great pride in the honour accorded to him, it being the culmination of some 25 years' membership of the Association. He made reference to the young student members and said he thought the newly-formed Junior Architects' Committee would be of great use to them in furthering their interests.

The President urged all members to support the branch correspondents who organised the functions and meetings.

Other officers were elected as follows :—Vice-Presidents, Messrs. W. Rosser, F.R.I.B.A., and P. B. Dunham, F.R.I.B.A., Past-President, Mr. P. J. J. Panter, F.R.I.B.A. Members of Council :—(Northamptonshire)—Messrs. F. B. Allen, L.R.I.B.A., E. W. Cowell, A.R.I.B.A., F. C. J. Smith, L.R.I.B.A., E. J. Storry, A.R.I.B.A. and J. L. V. Womersley, A.R.I.B.A.; (Bedfordshire)—Messrs. B. C. Deacon, F.R.I.B.A., H. Hartley, A.R.I.B.A., and F. Napp, A.R.I.B.A.; (Huntingdonshire)— Mr. K. A. Milner, L.R.I.B.A. Hon. Secretary and Treasurer, Mr. P. G. Copson, L.R.I.B.A., 35, St. Matthew's-parade, Northampton. Hon. Auditor, Mr. N. G. Bryan.

# DEVELOPMENT IN CANADA

## Scope for British Consulting Engineers

COMMENTS on the findings of the recent United Kingdom Engineering Mission to Canada under the leadership of Sir Harry Gilpin are contributed by Mr. G. Kenyon Bell, M.Inst.C.E., M.Cons.E., Chairman of the Association of Consulting Engineers, to the June 4 issue of the *Board of Trade Journal*.

As a result of the, on the whole, optimistic views expressed by the Mission towards the end of their tour, Mr. Bell was asked by the Board of Trade to vary a journey he was making to Brazil via New York to decide whether there were any openings for the employment of British consulting engineers in the design and construction of engineering works in Canada.

Following are some extracts from Mr. Bell's impressions:—My own view is that while there is work in the eastern provinces in sewage disposal, steam-raising plant, steel and concrete structure, it is in the Prairie Provinces and West that the greatest opportunities lie. Hitherto they have been regarded as mainly agricultural, but now it is realised that rich as the agricultural lands are, there are other riches in these provinces, especially in Alberta.

But the Prairie Provinces have to be developed, and since this process is, so far, in the initial stage, with no one willing to put a limit to the ultimate riches of the district, I consider that the time is ripe for the British engineer to consider whether he wishes to take a major part in the development of this vast region, or whether, adopting the policy of safety first, he is going to be an onlooker, allowing some other nationality to take the risk and reap the benefits.

There is, of course, a risk; the natural resources may not be so great as estimated, and the time taken to develop the country may be long, but so far as I know, there is always a risk in anything worth while. The Prairies may take some decades to develop, but taking the long view, the work is there and the man on the spot, if of the right type, is the only one who can sense coming developments.

Everywhere I went I found a sincere desire to buy British, whether brains or plant, coupled with a regret that they knew very little of what we could do or what we had to sell. The people feel that their provinces have great possibilities, and they know that, generally speaking, they cannot develop them properly without outside help, and unless we do something to help ourselves, they will inevitably go to other countries for the advice which it is our right to give them.

The Prairie Provinces are in need of all types of engineering—river control, water supply and irrigation, hydro-electric, sewage disposal, etc. Water supply in Saskatchewan is becoming an urgent necessity rather than a desirable adjunct. The average precipitation in settled parts, including snow, is about 15 inches, so that the control of some of the rivers running to waste, so far as that province is concerned in the spring and early summer, is of paramount importance.

In fact, one may say that the West requires in the future all the engineering services usually in operation in a civilised community and, in addition, has potentialities in oil, natural gas, and other industries requiring engineering advice. In British Columbia, the Pacific slopes of which have a completely different climate from the rest of Canada, the main requirements are for river control, large-scale hydro-electric schemes, and sewage disposal. The Rocky Mountains, rugged and timber-clad, are not well prospected for metals—precious metals are there, but so far as is known, there are no indications of coal or oil.

Such, then, are the facts gleaned during my hurried trip across the Dominion; the field is there, especially in the West, but it will require assiduous cultivation to become fruitful. There is good will towards us in Canada, and a sincere desire to see us helping in its expansion, provided we are not too dogmatic in our attitude; our problem, as I see it, is how to sell ourselves as engineers.

It appears quite certain that if we do enter into that field, we must have adequate representation actually in Canada; they will not consider a firm which contemplates running a job from Great Britain. Thus a British firm hoping to get Canadian work must either (a) open an office with an adequate staff and a partner or partners in charge; (b) enter into a partnership with an existing Canadian firm; (c) have a working agreement with a Canadian firm, or (d) enter the field as consulting engineers to a firm of contractors who are willing to tender for a major work on outline requirements only, the tenderers supplying the necessary design and, if successful, carrying out the work. This does not necessarily mean that only the larger British firms can hope to do any work in Canada. It should be possible for a number of smaller firms to combine together, somewhat in the same way as the various groups which carried out engineering works for the British Government during the war.

# HOUSING IN FRANCE

## Costs on the Increase

By B. S. Townroe.

THERE is a grave housing crisis in France to-day. According to the latest official figures, the number of obsolete and decaying dwellings has increased from 150,000 in 1914 to 4 million last year. It is estimated that this year at least 30 per cent. of the houses and flats in France are falling into ruin.

The rate of building new dwellings in France for various reasons is said to be considerably lower than in England or America. It is claimed that a typical family house takes 4,500 hours to build in the United States; 9,500 hours in England; and 22,000 hours in France.

As in this country, the cost of house-building continues to increase. The following are said to be the average prices of housebuilding in urban districts in France: a dwelling, usually a flat with two small rooms and kitchenette, costs £900, and a flat or house with four rooms, a kitchenette and a bathroom, over £1,500.

The situation was deteriorating before the war, for the French, with a population of 41,900,000, had only built 1,600,000 dwellings between 1919 and 1939. In Britain, not including Scotland, for a population less than that of France, 41,460,000, the total number of new dwellings built was 4,200,000.

The French Minister responsible for housing has been telling his fellow countrymen that at least 20,000 new dwellings ought to be constructed in France every month, and that this rate of new building ought to continue until 1989 at least, if the demand is to be met.

The problem is not that of materials, which are now available in fair quantity. Nor is it a question of manpower, now that Italian and other foreign workers are entering France. There has also been a good deal of modernisation of the French building industry. The main difficulty in France is that of finance. The French Government, faced with the dangers of inflation, and anxious to be independent as soon as possible of American aid, are economising in all directions, cutting down the Civil Service, and reducing or abolishing grants from public funds. For lack of finance some building yards in France have had to be closed and builders have gone bankrupt.

The position, however, is not so critical in French North Africa, where certain English firms are playing their part in building construction. For example, the town of Casablanca in Morocco continues to grow. The number of building workers here is larger than the total building force in three of the most important Departments of France.

**Prefabricated Dwellings.**

Experiments are also being made in the erection of prefabricated dwellings. At Villeurbanne, near Lyons, recently, two cottages of prefabricated components, with three rooms, a kitchenette, a bathroom and a cellar, were built in four weeks and are now being let at an equivalent of under 10s. a week.

The French Government are giving close attention to the amount of money available for reconstruction, not only of houses but of all kinds of buildings. The amount of destruction in France during the 1939 war was far greater than in the 1914 war. Some 360,000 buildings were completely destroyed and 1,320,000 seriously damaged. Every French town with more than 50,000 inhabitants, with only one exception, suffered from bombs, shells or sabotage. According to the Committee on Reconstruction, the work should come to an end next year following an expenditure of 610 milliard francs. In fact, reconstruction will take many more years than was originally anticipated and far more money, unless building costs are greatly reduced.

This year the French Parliament are being asked to consider a number of schemes for meeting the present housing crisis. One plan will be for tenants of flats, larger than required, to exchange with those who have large and young families. Plans for facilitating such exchanges are being put forward in the French Press. Another question arising is that of rooms formerly occupied by servants, and which are now empty because few people can afford to pay for resident domestic help. Others believe that the time has come to encourage the building societies to increase their pre-war activities and to make more use of the legislation passed in September, 1947.

It seems unlikely that, given the present financial position, when it is essential for the French Treasury to economise with a view to a balanced budget, any fresh housing programme for State-subsidised building on a large scale will be possible.

French housing policy has been like a man balanced on a tight rope. It has oscillated between the two extremes of State housing and absolute private enterprise. In any case the French are not as housing conscious as the British. In view of this, a great effort towards education in this direction has commenced in order to raise the standards of both houses and flats.

# COLONIAL DEVELOPMENT

## Projects in Federation of Malaya

INCREASED capital investment is one of the most urgent needs of the Colonies to-day, if those territories are to carry out fully their programmes of economic development. Capital is required to finance schemes which have been drawn up to increase food production and the output of essential raw materials, to develop industries, to improve communications and exports, and to expand social services and public utilities.

One of the methods by which funds are made available to assist economic progress in the Colonies is the raising of public loans, either locally or in the London market. These public loans are authorised under the Colonial Stock Acts with Treasury consent. Colonial trade is based upon sterling, and London, as the financial centre of the sterling area, is the natural market for the raising of such loans. The most recent public loan raised by a Colonial Government is one of £8,050,000, floated by the Federation of Malaya, for which subscription lists opened on May 12 and which was quickly over-subscribed.

The purpose of the loan was listed in the prospectus as "the financing of rehabilitation and development projects including railway and road communications, drainage and irrigation schemes and other public works." Up to the present, the cost of rehabilitation work undertaken by the Government has been borne entirely by the local administration, and this has put a severe strain on its resources. The estimated amount required for rehabilitation purposes and for approved development schemes is £11.7 million, of which £8,050,000 was raised in the London issue, the remainder to be raised by further local borrowing. Of the £8,050,000 new stock which was offered on the London market on May 12, £1,550,000 had already been placed, leaving £6,500,000 available for subscription. The stock, which was issued at par, carries interest at the rate of three per cent., and is redeemable between 1974-76.

The United Kingdom Government have decided, in view of the increased burdens Malaya has had to face since 1948, to offer a free grant of £20 million towards the Malayan War Damage Compensation Scheme in place of the £10 million offered in April last year. In addition, an interest-free loan of £18.5 millions is being made available. The offer has been communicated to the Federation and Singapore Governments with a view to early consideration by the two Legislative Councils.

The Federation of Malaya public loan is the third of its kind to be raised in the London market in the last six months. The other two issues were one of £3,168,000, three per cent. stock floated by the Trinidad Government, and one of £5 million, three per cent. stock floated by the self-governing Colony of Southern Rhodesia. Both these loans were opened for subscription in November last year and were heavily over-subscribed. As in the case of Malaya, the money was to be spent on various development projects and public works. In addition to loans already raised, a number of flotations are at present under discussion. One of these is a projected loan of £17.5 million to be spent on the development of East Africa's communications, and the Treasury has agreed in principle to support its application to the Capital Issues Committee. The loan, which it is hoped to raise in 1950 or 1951, would be guaranteed by the East African Governments concerned. Part of the British Guiana's Development plan is also to be financed by a new public loan of over £2 million, which will be raised on the London market in 1950 or later. Another projected loan is one of £1,300,000 which the Government of North Borneo hopes to raise in 1953 to finance part of the territory's reconstruction programme, estimated to cost £3.3 million.

# DANGERS OF OVER-CENTRALISATION

## A Warning to Planners

WITH the dual object of celebrating their jubilee and honouring their senior member, Mr. T. Alwyn Lloyd, F.R.I.B.A., P-P.T.P.I., J.P., the Town and Country Planning Association held a dinner at the Waldorf Hotel, London, on June 9. Sir Arthur Salter, K.C.B., M.P., chairman of the Council, presided.

SIR ARTHUR SALTER said he wanted to call attention to certain dangers which would confront any Government in dealing with planning. In particular he referred to the danger of individual Government departments putting forward projects which appeared to cut across the plans of the Ministry of Town and Country Planning and to be inimical to the interests of town and country planners in general.

We now had, he said, a Ministry specially charged with the promotion of these causes and endowed with legislative powers which, whether or not they were in all respects well devised, were at least drastic and adequate. What was now needed was not the acquisition of additional powers by public authorities but the wise use of them.

When the Association was formed the dangers to the amenities of the citizen and the natural beauty of the country came from uncontrolled and unplanned industrialism. To-day the dangers came from the unwise and ill-planned actions of Government departments and public authorities. These were not less serious and were more difficult to deal with. Government departments were as likely, or more likely, to drift into over-centralisation; their policy was often dominated by a narrow departmental view, and planning too often meant planning for a particular and limited purpose, in complete disregard of all secondary consequences.

Voluntary bodies, like the Town and Country Planning Association, the National Trust and many others, might be weakened by recent legislation at a time when the public interest required them to be stronger for a more difficult and equally important task. Sir Arthur hoped, therefore, that the Association would enter a new phase of vigorous activity.

Proposing the toast of "The Association," SIR PATRICK ABERCROMBIE said that although we now had a comprehensive Act administered by a Minister and a Ministry specially created for the purpose and to be implemented by the two great groups of local authorities—the county councils and the county borough councils—town planning was still a tender plant. Changing his metaphor, Sir Patrick described town and country planning as having become a wandering pilgrim over a landscape dotted with the fortresses of individualist barons. There was the

beetle-browed fortress of housing, which was regarded as being of the utmost importance. Why should one bother particularly where the houses grew so long as they were produced; why bother how they were grouped or at what density?

There was also the fortress of trade. Everything was sacrificed to the fortress of the export drive.

Perhaps the most formidable fortress with which town planning was faced was that of agriculture. "If you do not farm you will starve," was the cry. Also there were the fortresses of fuel and power, defence and the Treasury.

Sir Patrick complained that the Ministry of Town and Country Planning were largely negative in their demands. Planners would like to see from the Ministry a real forward, practical policy of what they (the Ministry) wanted. He recommended the setting up of a Commission for research into several matters in which planners were interested. It should report direct to Parliament but be only advisory.

We were only at the beginning of the carrying out of planning on a really grand scale. The Act gave great powers but also contained great dangers, and one of the powers which the Association should watch was that of flexibility. He had heard already that plans should not look more than 20 years ahead.

Responding to the toast, MR. F. J. OSBORN, hon. secretary of the Association, spoke largely in reminiscent vein and paid tribute to the outstanding personalities who had contributed to the Association's progress and that of the cause of planning.

SIR GEORGE PEPLER proposed the health of Mr. Alwyn Lloyd, who, in reply, recalled that it was through reading Ebenezer Howard's book, "To-morrow," that he first became interested, as a young architect, in town planning.

# FOREMANSHIP COURSES IN BUILDING

## Their Position in the Organisation of Building Education

COMMENTS on the position of Foremanship Courses in the organisation of building education and some remarks on planning and operating foremanship courses were made by MR. D. A. G. REID, B.Sc., A.M.I.C.E., A.M.I.Struct.E., Principal of the Brixton School of Building, when he addressed the annual general meeting of the Association of Technical Institutions.

We take the following extracts from Mr. Reid's paper:—

Technical education for the building industry is based upon two types of course: (a) Craft Courses, provided mainly for apprentices to the skilled trades and (b) General Building Courses (which include National Certificate Courses) having a broader technical scope than the Craft Courses.

A craft course will usually occupy about four years, so that a competent apprentice, who may reasonably be expected, in the course of time, to make a foreman, will complete his craft course and obtain his Final City and Guilds Certificate by the time he is 21. It has been recommended in the past that, at this stage, the student should be encouraged to enter a General Building Course (being excused the first year on account of previous study). This practice has not had quite the beneficial influence which might have been expected on the training of building foremen; the students who accommodated themselves successfully to the requirements of the General Building Course usually found their way into inside technical occupations rather than site supervisory positions, while many good candidates for these supervisory positions could not make satisfactory progress in the rather more academic type of technical course.

There is no doubt that a general building course end-on to a craft course is sound training provision for the prospective foreman and it may be that some further differentiation of general building courses is required in order to provide a course with limited objectives and subject treatment adapted to the needs of this type of student.

**Trade Foremanship Courses.**

In the meantime some experience has been gained with a Preparatory Foremanship Course (or Trade Foremanship Course) which has been provided for students who have just obtained their Final City and Guilds Certificates. It is a course of limited scope; about 12 class-meetings of two hours each were arranged in the first series but the provision is expanding and will probably ultimately occupy one evening per week throughout the greater part of one session of evening classes. The course aims at introducing the students to the problems of foremanship and each of the building trades is treated from the point of view of the problems of supervision which it provides. The most effective method of staffing the course is to have one lecturer, an experienced general foreman, to deal generally with the subject and the problems of human relations involved in foremanship. The problems of each particular trade should be presented by a man from that trade but it is desirable that the general lecturer should be present in order that he may fit the individual tradesman's talk into the scheme of instruction as a whole. This duplication of staff is a difficulty of running foremanship courses to which further reference will be made. A Preparatory Foremanship Course might well become part of a new-type general building course to which reference has already been made.

**General Foremanship Courses.**

Foremanship Courses proper come after courses of the types mentioned above, although it must be stated at once that many candidates for foremanship courses at present have no considerable background of technical education. Nevertheless, it is immediately practicable to make at least two requirements for admission to foremanship courses: (a) that the entrant shall be at least 23 years of age and (b) that he shall have had at least one year's experience in a site supervisory position in the building industry.

The purpose of a Building Foremanship Course is to assist in the training of general foremen whose duties entail a considerable amount of work of a general administrative and organisational character to which his technical knowledge is no more than a necessary background. Problems of human relations are also an important, probably the most important, part of his work, so that, whereas the Preparatory Foremanship Course was still essentially technical, the Foremanship Course assumes many of the characteristics which distinguish management courses. A certain degree of maturity and some first-hand experience of the problems of supervision are essential to the satisfactory comprehension of administrative, organisational and supervisory problems such as have been mentioned and it is important, therefore, that the conditions of admission suggested above should be regarded as absolute minima.

Reference has already been made to difficulties which arise on account of the lack of formal technical education of many of the entrants to Foremanship Courses at present This is regarded largely as a short-term problem; technical education for apprentices and other young building employees is now more systematic and widespread than it was 20 years ago and, of the men coming forward for supervisory posts in five years' time, a far greater proportion will have completed an organised course of study than is now the case. In the meantime, technical knowledge gained through practical experience must be relied upon to cover some of the gaps in formal technical education, and this is another reason for preventing too early an entry to Foremanship Courses.

**Planning Foremanship Courses.**

The planning of courses to assist in the training of general foremen for the building industry was very fully considered by an *ad-hoc* committee of the National Federation of Building Trades Employers rather less than a year ago.

The Committee's report is available in printed form, together with full particulars of the course proposed. The syllabuses included in the pamphlet may be regarded as representing current views and may be consulted for details of the work to be undertaken. The Committee's conclusions, which took account, among other things, of the experience already obtained of the running of such courses, were that Foremanship Courses should be based upon (a) the job analysis of a general foreman and (b) the need for revision of technical knowledge.

Treatment of much of the more tangible content of the job analysis can be grouped into two classes: (a) "Site Organisation" and (b) "Site Administration." The importance of the problems of human relations is recognised by references in various sections of both the classes already mentioned and also by the provision of a class entitled "Personnel Management and Welfare." The Institute of Industrial Administration have worked out a Certificate Grouped Course in Foremanship, with no special reference to any industry but applicable mainly to the factory industries. A comparison of the proposals so far put forward for a building course with the subjects of the Institute's Grouped Course reveals reassuring similarities especially when regard is had to the peculiarities of building work.

The drafting of syllabuses for the job analysis subjects has, so far, been based mainly on the work of a few men with personal experience of the work of a builder's general foreman and who have at the same time, interested themselves in problems of industrial administration as a whole. In these men, considerable parts of a builder's foreman's job analysis have been almost instinctive and the drafting of the syllabuses has been a process of looking at general industrial administration syllabuses through building eyes. It must be emphasised that experience in the use of these syllabuses is still comparatively small and frequent reconsideration is desirable.

There is much to be said both for and against the inclusion, in a Foremanship

Course, of provision for the revision of technical knowledge. In the main, the demand for technical instruction in these courses has been resisted. The view is taken that there are already provided lecture courses covering the field of technical instruction in building subjects. The fact is, however, that these courses are attended mainly by students between the ages of 17 and 24, that many of the men already occupying supervisory posts and wishing to enter foremanship courses, did not receive adequate technical education at the normal age and are now disinclined to take the technical courses normally provided. They do, however, feel the need of technical instruction to supplement their practical experience although, and this is another difficulty, they are not generally prepared to devote the time to basic study which is essential if the relatively advanced technical study for which they ask is to be properly carried through.

The " revision " of technical knowledge included in a Foremanship Course is, for such men, more in the nature of an organisation of their practical experience though, whether this is the case or whether the class is genuine revision for a former technical student, it involves difficulties of presentation to which further reference will be made.

The organisation of discussion groups to consider particular technical problems may do something to ease this difficulty. It is envisaged that these groups shall be separate from Foremanship Courses proper although relying substantially on the same personnel for recruitment. Very few of these men are ready for a true discussion-group approach; they have neither the knowledge nor the ability of self-expression which that demands. If, however, a specialist lecturer in a particular subject is made available for about six meetings of the group, he can, by means of guided discussions, provide instruction in the form most acceptable to the group members. This form of class is, in any case, very desirable for keeping foremen in touch with recent technical developments and it can just as easily be used for any well-defined aspects of constructional technique.

**Duration of Courses.**

As regards duration of courses, it is well established that adult students are not, in considerable numbers, prepared to join courses of a full session's duration or to commit themselves readily to more than one evening's attendance per week. In the first stages of development of foremanship courses in building, an attempt was made to restrict courses to about six weekly lectures. As developments proceeded, however, the content of such courses has tended to expand and the treatment to become fuller with the result that lecturers began to think in terms of 15 and 20 lecture courses. For many of the subjects already mentioned about 12 two-hour lectures are sufficient although the Federation Committee recommended rather longer courses for certain technical revision.

It had always been supposed that courses of this type would be evening courses. The Federation Committee proposed, as alternatives to evening courses, that courses might be provided either (a) as short full-time courses or (b) as part-time day courses on one day per week. For each of these two alternatives it was envisaged that the employer would release an employee during working hours to attend the course and would pay his wages normally during the period involved. An inquiry instituted by the London Master Builders' Association amongst its members during October, 1948, revealed that London employers were prepared to put forward the names of 229 men for admission to the courses, of which 51 were to take the short full-time course and 74 the part-time day course. Arrangements are at present in hand for organising a full-time course in the London area but they are not yet sufficiently advanced to show whether details of provision for the release of these men raise any further practical difficulties.

The Federation Committee's course would occupy about thirty-three weeks of two evenings' attendance each week. The alternative full-time course is provided in two periods of a fortnight each, separated by a period of not more than six months.

It may be of interest to note that the discussion group type of course, to which reference was made above in connection with the provision of facilities for technical study, may easily be organised to meet about once per month. The part of the session between September and Easter will provide for six meetings of such a group, a suitable number for the type of study envisaged. A number of such groups, studying different subjects, can be organised to run concurrently so than a man can arrange to attend with whatever frequency suits his circumstances.

It is possible that, with the strong support of the industry, men for these courses may normally be willing to attend on two evenings per week throughout the session. There will, however, almost certainly be a steady demand for attendance on only one evening per week during the period from September to Easter. The monthly meetings of discussion groups may be very useful to supplement the more limited attendance of this type.

**Operating Foremanship Courses.**

The operation of courses of this type raises all the problems normally encountered in adult education. The limitations of the formal lecture as an instrument of instruction must be recognised, and meetings should be planned to provide for the greatest possible class activity. Discussion must, however, be carefully organised if it is to be effective and if each member of the class is to contribute fairly to it. It is evident, therefore, that suitable lecturers are not going to be easy to find.

For the job-analysis type of subjects it is very desirable that the lecturer shall have had first-hand experience as a general foreman. Reference has already been made of the value, to such men, of a course in the general principles of industrial administration in order that they may have a general background of such knowledge against which to set out their building experience. The reorganisation of Management Courses will make it more difficult for such men to take any considerable part of the course, but the subjects in Part I alone will do much to provide the background required.

The short courses devised to assist lecturers in industrial administration subjects to improve their lecturing technique have been found very useful in augmenting the supply of lecturers available for foremanship courses. These short courses involve only about six meetings during which each member of the course delivers, at different times, two lecturettes which are subject to criticism by other members of the group as well as by the organiser and his assistants. It is possible for prospective lecturers to undertake a short course of this character where a longer and more thorough course would be impossible. Use of these courses may be something of a short-term policy but, in any case, they have the advantage of providing just the sort of initial experience which the prospective lecturer needs.

**Lecturers of To-morrow**

As has happened almost invariably in technical education in the past, the foremanship course of to-day will probably produce nearly all the foremanship lecturers of to-morrow, and it is in this connection that the inadequate background of technical study of many of the members of foremanship courses at present is most disadvantageous. The prospective foremanship lecturer must be a student, using the word in its broadest sense, and the man with little experience of study is unlikely to develop into a satisfactory lecturer, however wide his practical experience or however great his ability as a general foreman.

The interest of the National Federation of Building Trades Employers and the activity of the London Master Builders' Association promise good support for these courses from the industry. While this is sustained, there will be little difficulty in recruiting sufficient numbers of men to run courses at all the main centres of building education. It is proposed to set up interviewing panels to consider the applications for admission to the courses, the panels to consist of representatives of building employers and building foremen's associations and the principal or head of department from the technical college. The work of these panels should be useful in seeing not only that conditions of admission to the courses are properly applied, but also that the interest of the industry is sustained, and that the courses themselves are kept under constant review.

Some reference has already been made to the nature of the class meeting and the balance to be maintainel between formal lecture, discussion and other class activity. The ingredients of a successful technique seem to be: (a) Some formal instruction upon which the taking of notes can be carefully guided; (b) some guided discussion upon a subject (related to the lecture work immediately in hand) of which notice is given a week in advance; (c) some free discussion arising from the guided discussion of the same meeting or of the previous meeting; (d) some written work, calculation, sketching or tutorial work relevant to the subject up to about one third of the total time seems suitable for (a), the remainder of the time being usually devoted to (b) and (c) except for time taken by the lecturer for summing-up and giving such supplementary formal notes as he thinks necessary. Section (d) applies mainly to technical revision in which connection it can usefully replace some of the discussion.

The best results have so far been achieved with two lecturers working together with a class of about 20 men. The interplay of ideas between the two lecturers seems to have a stimulating influence upon the discussion besides emphasising the authority of the formal instruction. This is a generosity of staffing not generally contemplated by the regulations of local education authorities or by the Ministry of Education. It must be emphasised that what is required is not a lecturer and an assistant, but two co-lecturers of equal standing (although for administrative convenience one may be regarded as formally in charge of the class). For this method to work most efficiently, it must be possible for the lecturers to find out within the first two

weeks of the course, a good deal of the personal characteristics of members of the class, as well as particulars of their experience, the particular nature of the contracts on which they are at present engaged and their technical abilities. With this information at their disposal, the lecturers are soon able to call on members of the class to contribute to the discussions and can, if necessary, draw them out to talk about work which they have seen. It is doubtful if this technique could be operated successfully (even by two lecturers) with classes larger than 24.

With rather more careful preparation, the technique can be operated fairly well with a lecturer and a less experienced assistant. In these circumstances it has been found preferable for the assistant to give the lecture and the more experienced man to undertake the more difficult working of guiding the discussion.

**Problems of Presentation.**

Particular subjects have their own special problems of presentation. Personnel Management and Welfare has so far proved the most difficult in this respect. Good case material is necessary and, if effective use is to be made of it, it must be carefully analysed. The reconstruction of situations offers great possibilities as a teaching aid in this subject although, unfortunately, natural self-consciousness makes satisfactory treatment of many of the most important situations very difficult in this way. Experience has shown that, if the ice can be broken, a certain amount can be done. The sound film might be used to further the development in this direction.

More progress has, so far, been made with the Site Organisation course in which instruction can be centred upon one particular contract, of which each member of the class can be provided with a simple drawing and brief but representative extracts from a priced bill of quantities and a specification. A simple model to scale of about ¼ in. to 1 foot has been found valuable as a focus of discussion. Members of the class who could not express their views entirely in words and who could not obtain sufficient assistance from drawing on a blackboard would come forward and point to the model in order to obtain the assistance they needed.

For the Site Administration course there is no particular advantage to be gained from concentrating on one particular contract, although if the course is being run in parallel with Site Organisation it may be found convenient to make frequent references to a contract with which all members of the class are familiar. Examples of documents and technical information sheets should be duplicated for issue to the class, and it may sometimes be advantageous also to issue summaries of notes in this way. It is probable, however, that this may easily be overdone; each individual lecturer must, of course, find out what suits him best, but it must be remembered that a majority of the men in these courses will benefit greatly from having to take their own notes and by receiving considerable guidance in so doing.

Illustrations of actual building sites have been found so useful for illustrating certain features of Site Organisation that it has been decided to collect a set of 50 illustrations on to one film strip.

Short tests to check progress and assimilation of instruction are likely to prove very valuable in courses such as these, and experiments are being made with the use of multiple-choice tests for this purpose. The Revision of Building Practice class presents the problem of selection of material for treatment, and it is proposed to use multiple-choice tests as a check on knowledge of each section of the subject in order to indicate which parts of it may most profitable be revised. The variety of method whereby the member of the class is encouraged to think for himself about the subject should be increased by every possible means.

**Examination and Assessment.**

It is desirable that it should be possible, at the end of the course, to assess the performance of the various members of the class and, if this is to be done, suitable means of examination must be found. A normal written examination tests certain qualities which in this connection it is useful to test, but its limitations must be recognised. Experienced examiners will know that questions in an examination of this type require very careful drafting. The precise point of the question must be made very plain and the question carefully sectionalised to ensure that the candidate can understand what the examiner wants him to describe or explain. With all possible care it is difficult to penalise adequately the volubly discursive candidate, part of whose answer can hardly fail to fit part of the question. On the other hand, a man of very sound practical sense may include insufficient detail in his answer to justify the mark which his approach to the problem warrants. These are not new problems with written examinations, nor is it a new suggestion that course records should be available to supplement examination marks. Advantage may be taken of the presence of a second lecturer or assistant to accumulate a good deal of information regarding the abilities of each member of the class, the extent and value of his contributions to discussions, his performance in tests or other written work. Marks in a written examination are a valuable supplement to records of this type and, in some cases, an oral examination, conducted during the progress of the written examination, has been found to give further useful information. From a variety of information such as this, it is possible to assess very fairly whether or not a member of the class may be reported as having satisfactorily completed the work of the course.

**Certification.**

The issue of certificates in respect of these courses has so far been restricted to a simple statement by the Principal of the College to the effect that the man mentioned had been admitted to a certain series of lectures, made a certain percentage of attendances and completed satisfactorily the work of the course. It seems possible in the near future that employers' and foremen's organisations will be prepared to become joint parties with the College in the issue of certificates, not for individual subjects, but for the course as a whole. It will be a test of the worth of the courses if these certificates become generally acceptable as recommendations for advancement in supervisory appointments.

Acknowledgments are due to Messrs. A. G. Raven, A. G. Buck and W. R. Toogood, who have been responsible for so much of the pioneer work in the development of the courses which has been reported in this paper, and also to Professor C. A. Mace and Miss P. M. F. Hooper, of the Medical Research Council's Building Research Unit, who have done so much to guide and stimulate that development.

# SPECIFICATION FOR HOUSES AND FLATS

## The Fourth Edition

### By NORMAN H. WALLS

In almost every area in the country licences are now being issued for the building of houses by private enterprise for the occupation of purchasers. Great interest, therefore, attaches to the issue (on June 16) of the new (fourth) edition of the Specification of the National House-Builders' Registration Council*. The new Specification gives valuable information regarding the most recent developments of building science, particularly in the matters of heat and sound insulation. It has been prepared by a Technical Committee of the Council, representative of every housing interest. A very wide field has been covered by this Committee in its desire that every relevant consideration should be taken into account.

To this end the Committee has availed itself of the most generous help given by the Ministry of Health, the Ministry of Works, the Building Research Station, the Forest Products Research Laboratory and the Research and Development Councils attached to the industries producing building materials. They have also given consideration to the recommendations of Government Committees and in particular to the situation arising from the shortages of certain materials.

The Chairman of the Committee responsible for the preparation of the Specification was Mr. John Laing, and every care has gone into the preparation of the Specification from the point of view of practicability and dependability to ensure that it establishes a sound code, consistent with the Council's policy, and that it constitutes a valuable manual for the industry.

In the first quarter of the current year 7,238 licences were issued for the building of houses for private owners. A proportion of these will no doubt be built under the supervision of architects acting independently for the building owners, but many will be erected to the builders' plans on the builders' land and will, in fact, be speculatively-built houses of the type to which the Specification Scheme of the National House-Builders' Registration Council is intended to apply. It would be nothing short of a tragedy if any considerable proportion of these houses should be so poorly built as to justify the opprobrium of the term "jerry-built houses." Even a very small percentage of jerry-building will be sufficient to cause a bad Press, from the deleterious effects of which it will take the industry at least a generation to recover.

It is, therefore, in the best interests of everyone concerned with housebuilding to see not only that all houses are erected to an acceptable standard, but that they carry a certificate to this effect from an independent body representative of all housing interests and having statutory recognition. The National House-Builders' Registration Council is such a body.

Mr. Andrew Stewart, general manager of the Huddersfield Building Society and chairman of the Registration Council, in introducing the Specification said: "This

* SPECIFICATION FOR HOUSES AND FLATS (No. 1, relating to Brick Construction). Fourth Edition, applying to houses started after July 1, 1949. National House-Builders' Registration Council 82, New Cavendish-street, London, W.1. Price 5s.

is easily the most significant event in post-war housing. If any house purchaser in future buys a 'pig-in-a-poke' he has only himself to blame. The Specification is of great importance because it will prevent jerry-building from ever again raising its ugly head in this country. Even if no more than one-fifth of the houses built during the next year should be for private buyers, there is no reason why these should not be to a standard which will justify the faith of those who prefer to provide for themselves rather than to rely upon the subsidy of the taxpayers."

The National House-Builders' Registration Council was established 12 years ago to safeguard the interests of those who purchase or occupy houses built by private enterprise. It arranges for the periodic inspection during construction of houses built for sale. If the houses are found to conform to the approved Specification a certificate to this effect is given to the builder for transfer to the purchaser.

The cost of this inspection service is negligible; its value to the industry and the public is incalculable.

## DIFFICULTIES OF HOUSE BUILDING

### Minister's Remarks at Blackpool

REPLYING to a debate on housing and building at the Labour Party Conference at Blackpool on June 10, MR. ANEURIN BEVAN, M.P., the Minister of Health, said there were now more houses a head of population than before the war. It was a record that no nation in the world had been able to approach. But there was no complacency. There was a greater demand for houses now because the standards of the working-class population were higher than ever before.

Referring to the difficulties of house-building, he said that if he had accepted the limitations of soft-wood timber there would have been 250,000 permanent houses instead of 500,000, but there were more types of building and more ingenuity now being used than in all other countries combined. It was essential that certain repairs should be done or they would lose more than they gained, and if the labour were taken away from that work there would be no soft wood to enable it to be employed on new houses.

The present building programme amounted roughly to 200,000 houses a year, and with conversions there were about 250,000 additional homes a year. Even if he had all the soft-wood timber he wanted he would still have to keep a balance between houses, hospitals, factories and hostels.

Dealing with the tied cottage, he said that until the supply of accommodation more closely approximated to demand it would not be in the general interests of the tenants of rent-controlled houses for the Rent Restriction Acts to be amended. It had therefore not been possible to deal with the tied cottage in this Parliament. In the next Parliament the Rent Restriction Acts would have to be dealt with.

The question of a separate Minister for housing now lay behind them. They were limited by physical resources, not by the administrative machinery, which had long ago done the job. It was the industry itself, not the Government, which could do any more. He had been asked to increase the number of houses by reducing size and standards. He refused to build houses which in a few years' time would become slums.

## DROP IN HOUSING FIGURES

### "Builders Not Responsible"

THE point that builders were in no way responsible for the fact that 5,000 fewer new houses were completed in April than in March, was made by MR. NORMAN LONGLEY, president of the National Federation of Building Trades Employers, at the half-yearly meeting of the Yorkshire Federation at Scarborough on June 10.

The drop from 20,000 in March to 15,000 in April was, he declared, the natural result of a deliberate Government policy under which the rate at which new contracts for houses were allocated was reduced during 1948. The reasons for this were two-fold: first, to fit in with the Government's overall economic plan and, second, to get the housing programme into better balance and so avoid overloading and its serious consequences. To-day, because the type of building materials and labour required varied considerably, according to the type of job to be done, the dangers of underloading were nearly as great.

"If the country's economic position improves," he went on, "and it becomes possible to import more timber, the industry can, as the figures for earlier months show, build many more than 15,000 houses a month. In the meantime we must (helped, we hope, by an early substantial increase of the 'free' limit of £100) expend more labour and materials on overtaking the arrears of maintenance, repair and reconditioning work which the nation's buildings so badly need. We must tackle also that other enemy of a bigger housing programme, high costs. Very shortly the National Federation will be issuing to every one of its members a booklet which will contain details of payment-by-results systems (incentive systems is, perhaps, the better term) which are being successfully worked by builders. We hope that an ever increasing number of members will adopt such systems, particularly on new housing projects. Increased productivity will mean more houses at lower costs. This is what the nation needs."

Mr. Longley then said: "Recently the Attorney-General, Sir Hartley Shawcross, stated in a public speech that building industry costs were too high. Builders would be the first to agree, but as the report of the official Committee on House-building Costs has indicated, the cost of builder's overhead charges and profit are roughly only eight per cent. of the cost of a typical local authority house. Sir Hartley Shawcross should know that in the building industry every effort is being made to bring down costs. Increased productivity is our main hope. And increased productivity will come when the industry is progressively allowed to plan its work ahead without undue restrictions. Sir Hartley also referred to the problem of getting new methods of building across to the men on the site. Every effort is being made by the Federation to do this. The results of research undertaken by the Building Research Station are being made available to every member of the Federation. The Federation's Research Committee, in consultation with the Ministry of Works, is constantly reviewing the best methods of popularising all types of research among building contractors."

The President of the N.F.B.T.E. continued: "Builders are not only concerned with the short term well-being of the industry. We are planning ahead. We are still primarily an industry of craftsmen, and on the craftsmen of the future the industry will depend. We are not satisfied that the education and training facilities available to men at all levels in the industry are perfect. But a recent survey of the facilities available for education and training throughout the country indicates that much more is being done in this way than the critics realise. Maybe not all the educational facilities available are in the right places at the right time for the right people, but the Federation's Education and Training Committee, in co-operation with the various educational authorities, are surveying just what has to be done in order to make education and training in the building industry second to no other industry in the country."

## BUILDING APPRENTICESHIP

### Suggestion for Shorter Period of Indenture

THE suggestion that present-day conditions called for a shorter period of apprenticeship for the craft trades of the building industry, was made by MR. NIGEL HANNEN, President of the London Master Builders' Association, when he spoke in London on June 9. The occasion was a luncheon at the Connaught Rooms, Great Queen-street, to mark the publication by the Waverley Book Co., Ltd., of the first post-war edition of the "Building Encyclopaedia" and the "Encyclopaedia of Sanitary Engineering, Heating and Plumbing." Mr. Richard Ede was in the chair.

Mr. Hannen, who said he was deputising for Mr. Norman Longley, President of the National Federation of Building Trades Employers, spoke on education and training, and said the building industry realised that the old haphazard methods of acquiring knowledge were no longer acceptable, and that a co-ordinated plan for training must be started at once.

"I believe," he added, "it should be

possible to teach all that a man will be required to learn and know in the course of his trade in a shorter period. There will always be a sufficient number of technically minded young men who will go on to become super craftsmen. I do not suggest that the standard of craftsmanship should be reduced—it may very well be improved by additional education being given for the tasks that are actually required in practice.

"It is essential that a very big drive should be made to renew the interest of employers and boys in apprenticeship to ensure that there are sufficient newcomers to the industry. It may very well provide for a shorter period of apprenticeship, and it must give opportunities for the development of proper super craftsmen."

Other speakers, who were introduced by Mr. S. G. Blaxland Stubbs, general editor of Waverley Technical Publications, were Major A. B. Waters, M.B.E., G.M., F.R.I.B.A., Col. F. C. Temple, M.Inst.C.E., and Mr. H. Blackman, B.Sc.

## TRAINING FOR THE BUILDING INDUSTRY

### Call for Progressive Policy for Supervisory Grades

A CALL to building employers, large and small, to look upon training for the supervisory grades of the industry as a combined operation to which they should all contribute, was made by Mr. D. E. Woodbine Parish when he addressed a meeting of the Northern Area of the London Master Builders' Association at the Hendon Hall Hotel on June 8.

Mr. Woodbine Parish said: "During the next quarter of a century the Building Industry of this country, like a number of other industries, will have to accept an ever increasing responsibility in the matter of raising the level of efficiency by training and education in both the technical and managerial subjects if we are to be able as a nation to maintain the standards of life which have now been established. For we who live and work in the British Isles, whether we wish it or not, cannot escape our traditional rôle of setting and maintaining the highest standards of leadership, integrity, efficiency, skill and craftsmanship which have been and will continue to be the envy of all other nations, nothwithstanding the fact that to-day we are a debtor nation instead of a great creditor nation as in pre-war days. We must realise that as an industry we have a very vital and important part to play in the present national struggle to expand our export trade and so help to re-establish the economic stability of our country. The building industry should be justly proud of being in the vanguard of the reconstruction and modernisation of our industrial and commercial undertakings and of the rehabilitation and expansion of our agricultural resources. It is with a real sense of pride that we should undertake the development and re-equipment of the country's educational and hospital services and we should be deeply conscious of our duty and responsibility in assuring the early happiness and contentment of numberless thousands of families from all walks of life who, to-day, through no fault of their own, are denied the comfort and security of an adequate home in which to enjoy a normal and healthy family life.

"It is, however, of profound importance that the industry should be conducted with a managerial skill of the highest order. There are those who suggest that, with the countless controls and restrictions that exist to-day, there is little opportunity to contribute to the solution of our present industrial problems. This is manifestly an unenlightened outlook, for it fails to realise the latent skill and ability of many individuals who, given the right encouragement and opportunity, together with the necessary training could assuredly raise the overall efficiency of this vast and important industry and so help to lower the present inflated cost of building. There is to-day, perhaps as never before, a crying need to develop each man to his most useful limit and this can only be done by employers and those in responsible positions readily accepting the duty and liability that they have to establish and pursue a comprehensive and progressive policy of training and education for all supervisory grades within the industry.

**The Concern of Every Employer.**

"Supervisory training, however, like apprenticeship, is not the concern of only the larger employers, it is and must be the concern of each and every employer of building trade labour from the largest firm to the smallest firm. The form that such training may take will doubtless require to differ to suit the requirements of the various sections of the industry, but it is essentially a combined operation, that is, an operation to which every employer makes some contribution to a greater or lesser degree. I would venture to suggest that building trades employers must become far more training- and educationally-minded than they have been in the past.

"The standard of foremanship and supervision at present required entails considerably more than a technical skill or ability. It requires energy, determination and initiative, logic, intelligence and sympathetic understanding of human nature; confidence, perseverance and a clear knowledge of administration and general organisation and, above all, the intelligence and ability to lead and manage men. These qualities are, to a large extent, latent in many men and, with careful selection and skilful training they can be quickly developed with considerable success to the gain and advantage of the community at large.

"I am forced to the conclusion that many employers are so engaged in the daily round and common task that they fail to appreciate the vital and more ample tasks that lie ahead, particularly in the matter of training and industrial education. I therefore plead that all building trade employers should forthwith resolve actively to examine their various undertakings and ensure that they are not failing, by suitable training, to improve their overall efficiency and capacity. It is by such examination that wastages of manpower and material can be disclosed and checked, building costs reduced and the volume of work per man year increased."

In conclusion, Mr. Woodbine Parish said: "The first whole-time day courses exclusively devoted to the training of general foremen have just started in London and the enthusiasm and keenness which have been displayed by those taking part are indeed encouraging and confirm in large measure the confidence which the N.F.B.T.E. and the foremen's organisations have always had in their joint approach to this urgent matter. Let us, as employers, realise the many opportunities that do, in fact, exist to-day, notwithstanding the frustrations of the post-war period. Let us support to the maximum this 'new look' in the matter of training for supervision, casting aside the backward and fallacious notion that the hard way to foremanship or supervisory posts, which were good enough for our forebears, is the best and only way. And, finally, let each one of us endeavour to stimulate and encourage this supervisory training to the greatest extent so that within the next decade we can look back upon our work with quiet satisfaction in the knowledge that our efforts have contributed in some degree to the maintenance and improvement of the high standards of which we in the past have been so justly proud."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## BUILDING CONTROLS

### Wider Scope for Builders Urged

Strong criticism of the limitations placed on the work of building societies was made at the annual meeting of the Midland Association of Building Societies in Birmingham on June 7. Particular stress was laid on the need for private builders to assist in solving the housing problem.

Lord Dudley, who said he regretted having to relinquish the presidency, which he had held for eight years, expressed the opinion that there ought to be a much wider scope for the building societies and for private enterprise in the building industry. "We believe," he said, "that houses should be owned on the widest possible scale by citizens. I think that by this continued application of controls there is a danger that demand is being stifled for all time. People are getting used to doing without things, and it will be years before you can again arouse a healthy demand among the population for things they want and should have."

Sir Francis Joseph, who succeeds Lord Dudley as president, said the present cost of new houses was too high. No sensible person desired building wages reduced, but output had to be increased. If the private builder was given a chance, the cost of houses would come down.

# INQUIRY BUREAU

## Faulty Water Valve

Q.—I get my supply of water from a reservoir which is slightly below the level of my house, and I have to pump it up by an electric and a semi-rotary pump, using the rotary pump to start it before switching on the electric one. My trouble is this: I have a check on foot valve to hold the water and so save using the rotary, but the valve will not hold the water up and it drains away in a very short time. The valve has a leather flap and I feel that there is air below the valve when the water drops below the valve and so it will not allow the leather washer to settle flat. I have taken the valve to pieces several times and found no obstruction. L. W.

A.—Experience shows that there are only two possible causes of failure in such a valve. The first, a common cause, is that a piece of string, or thread, or other foreign substance, gets on or across the seating of the valve; that, of course, should be removed. The other cause is failure of the seating through unequal wear or corrosive action at one particular point. If you can get full access to the seating of the valve, you can make it good by abrasive action with a piece of emery paper under a suitable wooden rod. It is very unlikely that air below the valve can be responsible for its failure. G. W. H.

## Construction of Tiled Floor

Q.—We shall be pleased if you will advise us of the manner in which to carry out the following extract from a specification. "Fill in under solid floors with excavated material to the required depth; lay a bed of approved hard core 3 in. thick when consolidated. Provide a dampcourse membrane of pitch and tar, applied hot, as a sandwich filling under tiled floors." B. G. C.

A.—It is to be assumed that under excavator the top soil, usually garden mould, is to be removed. The question of how much excavated material is required to fill in depends upon the top of the finished tiled floor. Assuming it is 12 inches, that means for tiling and bed (three inches), half inch to three-quarters for the membrane of pitch and tar (this should be specified in regard to composition), three inches of hard core and the rest excavated material. The hard core will require to be broken to one inch diameter and the voids filled with crushed clinker. The whole should be rolled to get a consolidated foundation to take the dampcourse membrane. This, however, could not be recommended and it is suggested, therefore, that three inches of hard core and clinker as described and a topping of four inches of concrete, 4-2-1 mix, waterproofed, and finished with wood trowel, screeded with 2 and 1 mix of Portland cement and sand, waterproofed, and the tiles laid on top would meet the case. Hard core on excavated filling would, no doubt, attract dampness and cause fungi to appear through any cracks caused by settlement, and then through the pitch and tar membrane. Probably cracks would also show in the tiled floor. G. W. H.

## Bulldog Connectors.

Constructional Research Bulletin No. 3, entitled "Tests on Bulldog Connectors," by Mr. Phillip O. Reece, A.M.I.C.E., M.I.Struct.E., A.M.I.Mun.E., has been issued by the Timber Development Association, 75, Cannon-street, E.C.4, from whom copies may be obtained.

# CODES OF PRACTICE

## Jointless Flooring

THE Council for Codes of Practice for Buildings has now issued as drafts for comment, Code 204.103, "Mastic Asphalt Flooring," and Code 204.104, "Pitch Mastic Flooring." These documents have been prepared on behalf of the Council by a committee convened by the Royal Institute of British Architects.

These draft sub-codes are two of a group of codes on jointless flooring, and deal with pitch mastic and mastic asphalt flooring respectively, including their coloured varieties. The recommendations given and the precautions to be observed for flooring are, in general, also applicable to stairs.

The codes give useful information on the characteristics of both types of flooring, including temperature susceptibility and resistance to wear and abrasion and to chemical attack; the suitability of the floorings for various conditions of use is also dealt with.

Guidance is given on the preparation of the sub-floor, including any screeding, on the provision of any necessary underlay, and on laying these floorings. The finished treatment, the protection of the surface of the newly laid flooring during subsequent building operations and, finally, putting into service and maintenance are also described.

These codes, which are in draft form, are subject, before final publication, to amendment in the light of comments received. Comments, which are invited, should be submitted by July 12, 1949.

Copies may be obtained from the Sales and Distribution Department of the British Standards Institution, 24 Gillingham-street, S.W.1. Code 204.103, "Mastic Asphalt Flooring," price 2s. 6d., post free, proof reference CP(B)856; Code 204.104, "Pitch Mastic Flooring," price 2s. 6d., post free, proof reference CP(B)855.

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# ROOF TILE PRODUCTION

## A Plan to Overcome Shortage

AUSTRALIA'S Federal Government is adopting British, European and American methods of mass-producing roof tiles by the "extrusion" process, to help overcome the present severe shortage of roofing materials. An annual production of 5,000,000 tiles is planned.

A visiting Austrian building expert first told the Australian Housing Commission about the ease and speed with which extruded tiles could be made. After investigation by the Commonwealth Scientific and Industrial Research Organisation (C.S.I.R.O.), the New South Wales Government planned to build a State-owned terra-cotta tileworks near Blacktown, about 20 miles west of Sydney. Big deposits of red clay in the area make it suitable for tile production. These deposits have been used for more than 30 years for older methods of producing pressed tiles and bricks, methods which present-day emergency conditions have proved too slow.

The Housing Commission has bought modern extrusion plant in Switzerland and Austria, and other plant has been built in Australia. Extruded tiles made in the new plant will be of the interlocking type, with overlaps to stop rain seeping through the roof, in place of the "weather-bar" found in tiles produced by the conventional pressed method.

Extruded tiles are made entirely by machinery. Clay, dug by power shovel, is taken by motor truck to the crushing pit. From there it goes to the press house by endless belt conveyor. In the press house, the crushed clay is fed through rollers into a double-shafted open-type mixer, where it is mixed with water to the right consistency. The mixture of clay and water goes to a modern extrusion press, which forms it into a clay ribbon, and then into blocks of 18 in. long. Another conveyor belt takes these blocks to the hoppers of three tile presses which produce a ribbon. Fed through a die, this ribbon emerges in the form of completed, but soft, tiles. An automatic transport unit then takes the tiles to kilns, where they are baked and glazed.

Clay-processing machinery now being installed at Blacktown will need to be operated for only about four hours a day to make enough blocks to keep the kilns filled. For the rest of the working day the machines will be used for the production of glazed clay water-piping, which is also scarce. Building of the new tile plant should cause a great improvement in the home building position.

## School Building in Lancashire.

Lancashire Education Authority has an ambitious building scheme for the future, which includes a large number of schools.

An indication of how costs are rising is given in connection with one project for a junior and infant school at Netherton which it is now estimated will cost at least £90,000. Originally the estimated cost was £27,000 less than this sum. An extension of the I.M. Marsh College of Physical Education in Liverpool, which will increase the resident accommodation for students from 90 to 120, will cost £81,000. It is proposed to purchase Massey Hall, Thelwall, Cheshire, which estate covers 27 acres, as a school for senior girls in need of special educational treatment. The cost is £10,500.

The programme for 1950 includes the rebuilding or transfer to new sites of schools at Maghull, Huyton, Prescot and Widnes.

# NEWS IN BRIEF

**Isleden House.**

The Trussed Concrete Steel Co., Ltd., London, S.E.1, were responsible for the floors at Isleden House, Islington, and not as given in our issue for June 10 when this building was illustrated.

**College Students' Successes.**

Students of the L.C.C. Catford College of Commerce secured 100 per cent. successes in the recent examinations held by the Chartered Auctioneers' and Estate Agents' Institute and the Incorporated Society of Auctioneers. In the session just finished the College included for the first time courses for housing and estate management students.

**Special Roads Act Welcomed.**

In the June issue of its monthly bulletin, the British Road Federation welcomes the new Special Roads Act and congratulates the Government on the passage of "a far-sighted piece of legislation." The bulletin also states: "Fully conscious of the need that as much as possible should be done as quickly as possible, the Federation nevertheless puts forward the suggestion that, in present circumstances, concentration on one particular motorway would not only be immediately beneficial, but would yield results in terms of practical experience invaluable in the construction of the rest of the system."

**Gypsum and Anhydrite Plasters.**

The various calcium sulphate plasters commonly used in building are discussed in "National Building Studies Bulletin No. 6, Gypsum and Anhydrite Plasters," recently published for the D.S.I.R. by H.M.S.O., price 6d., by post 7d. After giving a short account of the ways in which the raw materials, gypsum and anhydrite, are used to produce the different groups and classes of plaster, the Bulletin deals with the properties of these plasters both during application and as set material. The mixes normally employed are also discussed, and precautions necessary are given.

**A.M. Scheme at St. Helen's.**

Apprentices working in connection with the St. Helen's Corporation Apprentice Master Scheme were congratulated on their work by Sir George Gater, Chairman of the Building Apprenticeship and Training Council, during a recent visit. Sir George, who was accompanied by Mr. J. C. Cox, Secretary, B.A.T.C., and Regional Officers of the Ministry, was introduced to the boys and their instructors, and told them that he and his colleagues were very impressed with their progress and the quality of their work. Sir George also paid a tribute to the instructors, the Apprentice Master (Mr. T. Caulfield) and to the Housing Committee.

**M.O.H. Loans.**

Loans sanctioned by the Minister of Health to local authorities in England and Wales during the quarter ended March 31, 1949, are as follows:—Housing, £59,814,849; Health, (a) Personal (i) services provided under the National Health Act, 1946, £276,604. (ii) occupational centres provided under the Mental Deficiency Acts, £5,132: (b) Environmental, £5,218,405; National Assistance, £140,040; Children Act, 1948, £112,154; Miscellaneous, (a) Town Halls, Municipal Offices, etc, £133,601: (b) Civic Restaurants, £36,740: (c) Other, £1,126,925; Education, £6,910,462; Gas, £3,165,072; Highways and Private Street Works, £921,262; Police, £156,549; Town and Country Planning, £1,038,393; Total, £79,056,188.

# TRADE NEWS

**Change of Address.**

From June 20 the west of England headquarters of Messrs. Bryce White and Co., Ltd., will be at North Common, Warmley, Bristol. Tel: Bitton 2146-7.

**A New Appointment.**

Mr. P. S. Barton, who has been with the Benjamin Electric Ltd. for nearly 20 years, has now been appointed General Sales Manager to Courtney, Pope (Electrical) Ltd.

**A New Tiling Company.**

Mr. Arthur Owen Carter, with his two sons, has formed a company of wall and floor tiling contractors known as Carter and Sons (London), Ltd., with registered offices at Bank Chambers, 1, Wandsworth-road, S.W.8.

**Corrugated Aluminium Sheet.**

A brochure issued by the British Aluminium Co., Ltd., and obtainable from Salisbury House, London Wall, E.C.2, draws attention to the company's "Rigidal" corrugated aluminium sheet, for which many constructional advantages are claimed—including durability, lightness and strength.

**Hot Dip Galvanisers Association.**

The Zinc Development Association announces the formation of the Hot Dip Galvanisers Association, a non-trading body which has been set up to promote the development of existing and new uses of hot dip galvanised coatings, and to improve galvanising technique. The new Association, which will be a member of the Zinc Development Association, will have its offices at the same address, Lincoln House, Turl-street, Oxford (tel.: Oxford 48088).

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# THE SCOTTISH BUILDER

## NEW BUILDINGS

**Bishopbriggs.**—Public school to be reconstructed and additions to be made, for which the architect is I. C. Miller, Lanarkshire House, Ingram-st., Glasgow.

**Bothwell.**—New housing scheme proposed at Hill-rd., for which the architects are The Scottish Special Housing Association, Ltd., 15-21, Palmerston-pl., Edinburgh.

**Brackenhurst.**—Lanarkshire. C. to carry out housing scheme, for which the architect is Samuel MacColl, County-bldgs., Beckford-st., Hamilton.

**Carfin.**—On Thornton-rd. site new halls to be erected, for which the architect is John S. Craig, 75, Manse-rd., Newmains, Lanarkshire.

**Falkirk.**—Plans approved for extension to Messrs. Carron Company's works, Mulgal Foundry, Bainsford, at £25,500; new storing building for Messrs. R. & A. Main, Ltd., Gothic Works, Falkirk, at £14,880.

**Glasgow.**—New offices, etc., to be erected at Broomhill-dr., for which the architects are the General Works Dept. of the British Electricity Authority, Broomhill-dr., Glasgow.

**Glasgow.**—Corporation is to erect on a site at Walkerwell-rd. a scheme of houses and shops, etc., for which the architect is Mr. A. G. Jury, Housing Offices, The Trongate, Glasgow Cross, Glasgow.

**Greenock.**—Plans to be prepared for a public school at Inverkip-rd. district by the Renfrewshire County Education Architects, Council bldgs., Glasgow-rd., Paisley, Renfrewshire.

**Lanark.**—At the Kildare Housing site, scheme of 20 houses is to be erected for which the architect is A. M. MacCorquindale, 5, Hope-st., Lanark.

**Lanarkshire.**—C.C. to erect housing scheme at The Bridge site, Dead Waters, for which the architect is Mr. Samuel MacColl, County Buildings, Beckford-st., Hamilton.

**Lanarkshire.**—Plans are in hand for 50 houses to be erected at Mount Vernon for the Scottish Co-operative Society, Ltd., for which the architects are Cowie & Miller, 45, Cleland-rd., Motherwell, Wishaw.

**Larkhall.**—At a site adjoining Dalserf Colliery, new manufacturing buildings for the manufacture of bricks to be erected from plans by Hay, Cassells and Frame, 114, Cadzow-st., Hamilton, Lanarkshire.

**Rutherglen.**—Extensions, alterations and additions to be carried out on two departments of their works from plans by their own architects, by the Clyde Paper Works Co., Ltd., Clydeside, Rutherglen.

**Shotts.**—At Station-rd., new ice-cream factory to be erected, for which the architects and quantity surveyors are Frederick Smith & Partners, 4, Regent-st., The Cross, Hamilton.

# FUTURE CONSTRUCTION

## PUBLIC APPOINTMENTS

*Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.*

## CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

### BUILDING

**JUNE 21.**

**Rugby R.D.C.**—40 houses at 2 sites. D. G. McVinnie, M.I.Mun.E., S. Council Offices, 2 Warwick-st. Dep. £2 2s. Tenders by July 1

**JUNE 22.**

†***Hampshire Police Authority.**—Senior Police Officer's house at Highfield-gdns., Aldershot County A., The Castle, Winchester. Dep. £1 1s

**JUNE 23.**

†***Cromer U.D.C.**—Rebuilding stage and dressing-room and general redecorations at Pier Pavilion, Ed. Boardman & Son, Architects Queen-st., Norwich. Dep. £2 2s.

**JUNE 24.**

†***Bristol T.C.**—New pennage buildings at certain alterations and additions at Cattle Market. W. A. James, F.R.I.C.S., City Estate S. & Valuer, The Exchange. Dep. £2 2s.

***Ealing B.C.**—Renovation and repairs to first-class swimming bath, Longfield-ave. B.E. & S. Town Hall. Dep. £2 2s.

**JUNE 25.**

†***Essex C.C.**—Adaptations and additions to Central Kitchen, Lower Queen's-rd., Buckhurst Hill. County A.

†***Essex C.C.**—Alterations and additions and external painting at "Greenbourne," Writtle. County A.

†*Gloucester R.D.C.—12 houses at Whitminster. C. Carus-Wilson, M.C. (F.), Hardwicke, Glos. Dep. £3 3s.

Rawmarsh U.D.C.—70 houses at Monkwood estate. E. & S., Council Offices, Parkgate, Yorks. Dep. £5.

JUNE 27.

Barnsley T.C.—12 houses at Athersley estate. B.E. Dep. £2 2s.

†*Beds. C.C.—Erection of County Primary School, Caddington Green. County A., Shire Hall, Bedford. Dep. £2 2s.

†Cricklade R.D.C.—10 Airey houses with ancillary works at Green Farm, Lyneham. E. & S., Council Offices, Wootton Bassett. Dep. £2 2s.

Longbenton U.D.C.—20 houses at Mead-cres., Forest Hall. E. & S., Council Offices, Forest Hall. Dep. £2 2s.

Portslade-by-Sea U.D.C.—14 houses and 16 flats at Foredoun-rd. site. S., Council Offices. Dep. £2 2s.

Thame U.D.C.—16 houses at Kingsly-rd. estate. T. Lawrence Dale, Lloyds Bank-chbrs., Carfax, Oxford. Dep. £2 2s.

Williton R.D.C.—Four houses at Old Cleeve. E. & S., Council Offices, Fore-st. Dep. £2 2s.

JUNE 28.

†*Bucks C.C.—Two pairs of houses at Middle-rd., Aylesbury. County A., County Offices, Aylesbury. Dep. £2 2s. Tenders by July 25.

Cookham R.D.C.—Eight bungalow-type houses at Cannon Bridge estate. J. H. Beevis, Architect & S., Council Offices, "Oaklands," 1, Bach-rd., Maidenhead. Dep. £2 2s

†Stamford B.C.—36 houses at Drift-rd. estate. F. J. Lenton & Partners (F. & A.), 16, Broad-st., Stamford.

JUNE 29.

Guildford R.D.C.—20 pairs of bungalows and incidental works at Government-rd., Ash. E. & S., Millmead House. Dep. £2 2s.

†*Norfolk E.C.—Conversion of handicraft hut to dining-room and erection of kitchen at Reedham County Primary School. W. O. Bell, Chief Ed. Officer, Stracey-rd., Norwich. Dep. £2.

JUNE 30.

Carlisle T.C.—44 houses at Upperby Village. City E., 18, Fisher-st. Dep. £2 2s.

*Hampshire C.C.—Primary school at Wallisdean, Fareham. County A., The Castle, Winchester. Dep. £2 2s.

†*Somerset C.C.—20 staff houses at Comeytrowe-la., Galmington, Taunton. R. O. Harris (F.), County A., Park-st., Taunton. Dep. £2 2s.

*Welton R.D.C.—14 houses and 8 bungalows at various sites. Wm. Saunders & Partners, 24, Castle-gate, Newark-on-Trent, or 14, Mercer-row, Louth, Lincs. Dep. £3 3s.

JULY 1.

Bungay U.D.C.—Eight houses at Hillside-rd. Buckingham & Berry, 31 Prince of Wales-rd., Norwich. Dep. £1 1s.

Carmarthen R.D.C.—20 houses at Clynderwen, Llandissilio East. G. G. Thomas, S., 3, Spilman-st. Dep. £3 3s.

Castle Ward R.D.C.—100 houses at Dinnington Village. J. Bolton, E. & S., 7, North-rd., Ponteland. Dep. £2 2s.

†*East Suffolk C.C.—Four police houses at 4 sites. E. J. Symcox (F.), County A., County Hall, Ipswich. Dep. £2 2s. Tenders by July 22.

Tavistock U.D.C.—26 houses at Green-la. S., Council Offices, Drake-rd. Dep. £2 2s.

JULY 2.

Milnrow U.D.C.—28 houses at Bentgate-st. site, Newhey. A. Travis, Architect, Yorkshire-st., Rochdale. Dep. £2 2s.

Ramsey (Hunts) U.D.C.—Six houses at Westfield site. V. J. Bateman, S., Whytefield-rd. Dep. £2 2s.

*York T.C.—Four pairs of police houses at 2 sites. City E. & Architect, Guildhall. Dep. £1.

JULY 4.

Burton-upon-Trent C.B.—100 houses in 5 groups at Manners estate, Part 2. B.S., Town Hall. Dep. £1 1s. each group.

Penryn T.C.—10 old people's flats at Saracen estate. T.C., Municipal Offices. Dep. £2 2s.

Ringwood and Fordingbridge R.D.C.—Three blocks of single-storey dwellings. F. Andrews, architect, 45, High-st., Ringwood. Dep. £2 2s.

*Sittingbourne and Milton U.D.C.—Eight blocks of 4 two-storey flats at Canterbury-rd. estate. E. & S., Council Offices. Dep. £2 2s.

†Wilts. C.C.—Police station at Corsham. F. I. Bowden, County A., County Hall, Trowbridge. Dep. £2 2s. Tenders by July 25.

JULY 5.

Grimsby T.C.—36 houses in 3 schemes at Little Coates-rd. estate. B.E. & S. Dep. £3 each contract.

Grimsby T.C.—16 houses at Laceby-rd., Nunthorpe. B.E. & S., Municipal Offices. Dep. £3.

JULY 6.

*Dewsbury C.B.—Primary school at Chickenley. Boro' A. & Buildings S., Town Hall. Dep. £5.

*Huntingdon C.C.—Additional office accommodation, garages and cycle shed at Huntingdon Police Station. County A., County-bldgs.

JULY 7.

Atherstone R.D.C.—Houses at Oldbury-rd. site, Hartshill. Section 1—17 houses and 3 pairs Duplex houses; Section 2—8 houses; Section 3—8 houses and 1 pair Duplex houses; Section 4—12 houses and 1 pair Duplex houses. H. N. Jepson (A.), Midland Bank-chbrs., Nuneaton. Dep. £3 3s.

*Mansfield T.C.—122 houses at Ladybrook-la. estate. B.E. & S., Carr Branch. Dep. £2 2s.

*Salop C.C.—(1) Regrading and formation of playing field and erection of Ellesmere Secondary Modern School; (2) balance of site works and erection of second phase of Shifnal Secondary Modern School. A. G. Chant, County A., 5, Belmont, Shrewsbury. Dep. £2 2s

JULY 8.

*Esher U.D.C.—40 dwellings at The Grange estate, West Molesey. E. & S., Council Offices. Dep. £1 1s.

*Malvern U.D.C.—48 houses at Langlands site. S. & Water E., Council House. Dep. £2 2s.

Newcastle-under-Lyme R.D.C.—18 houses at Moss site, Madeley. A. P. Lovatt, architect, 6, King-st. Dep. £2.

JULY 11.

*Chester R.D.C.—(a) 10 houses with incidental drainage work at Christleton; (b) roadworks and main drainage. H. Beswick (L.), 19, Newgate-st., Chester. Dep. £2 2s.

*Huntingdonshire C.C.—Alterations and additions to ground floor at Shire Hall. County A., County-bldgs.

*Lincoln T.C.—65 flats and maisonettes in 5 blocks. City Housing A., Stamp End. Dep. £3 3s.

*Lincoln T.C.—46 dwellings at Boultham Moor North estate. City Housing A., Stamp End. Dep. £3 3s.

Tynemouth C.B.—Conversion of 16, Northumberland-sq., North Shields, into offices. B.S., Howard-st., North Shields. Dep. £2 2s.

JULY 13

*Chesterfield R.D.C.—22 houses at Birk Hill, Eckington. J. B. Wikeley, M.Eng., A.M.I.C.E., Rural Council House, Saltergate. Dep. £2 2s. (by cheque).

*Darlington C.B.—New primary school and nursery at The Broadway, Eastbourne. Boro' A., Central-bldgs. Dep. £2 2s.

JULY 16.

*Salford T.C.—32 flats and 4 shops at Eccles New-rd. City E., Town Hall. Dep. £3 3s.

JULY 18.

*Welwyn R.D.C.—16 houses (instalment No. 2) at Hawbush Common estate. S., Council Offices, Welwyn-By-Pass-rd. Dep. £3 3s.

JULY 19.

St. Thomas R.D.C.—12 houses with roads, etc., at Woodbury Salterton. Lucas, Roberts & Brown, Barnfield-hill, Exeter.

## PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

JUNE 25.

†*Essex C.C.—Internal painting at North-st. County Primary and Infants' School, Colchester. County A.

†*Essex C.C.—Internal decorations and repairs at Chipping Ongar Secondary School. County A.

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## "THE BUILDER" PRICES

### Reductions in Metals

Further reductions in the prices of non ferrous metals, from June 10, are announced by the Ministry of Supply.

The reduction and the previous prices (per ton delivered), are :—

| | *Present Price.* | *Old Price.* | *Reduction.* |
|---|---|---|---|
| Electrolytic copper | £117 10s. | £130 | £12 10s. |
| Good soft pig lead ... | £82 | £95 | £13 |
| Good ordinary brand zinc ... ... | £78 | £85 | £7 |

Discounts, premiums, and the Ministry's buying price for rough copper in slabs of from 2 cwt. to 3 cwt. remain unchanged.

The prices of zinc oxide are also reduced to the following figures for lots of not less than 2 tons, delivered buyers' premises :

| | *Present price. Per ton.* | *Old price. Per ton.* |
|---|---|---|
| Red Seal ... ... | £75 15s. | £81 15s. |
| Green Seal ... ... | £77 5s. | £83 5s. |
| White Seal ... ... | £78 5s. | £84 5s. |

### Brass and Copper Tubes

In consequence of the reduction in the controlled prices of zinc and copper which came into operation on June 10, The Brass and Copper Tube Association announce that the basic prices of tubes are reduced forthwith as follows :—

| | *Home per lb.* | *Export per lb.* |
|---|---|---|
| Brass tubes reduced by 1½d. per lb. ... ... ... = | 20½d. | 21d. |
| Copper tubes, reduced by 1½d. per lb. ... ... = | 20½d. | 20½d. |
| Building Service Tubes to B.S.659 : 1944, B.S. 1401 : 1947, Table 1, B.S.1386 : 1947, reduced by 1½d. per lb. = | 13½d. | 13½d. |

In connection with export prices, it should be noted that prices according to the international arrangements, or the Association export prices whichever are the higher, should be charged.

### Lead Sheet and Pipe

Associated Lead Manufacturers announce that lead sheet and pipe prices are reduced in all districts by £13 15s. per ton, coming into effect from June 10.

The new *basic prices* for the areas detailed below for 2-ton lots are as follows :

| | *Sheet lead per cwt.* | *Lead pipe per cwt.* |
|---|---|---|
| London ... ... ... | 98s. 0d. | 99s. 3d. |
| Dorset, Hants (excluding Aldershot), Hereford, Mon., Glam., Radnor and Brecon | 98s. 6d. | 99s. 9d. |
| Cardigan, Carmarthen and Devon ... ... ... | 99s. 0d. | 100s. 3d. |
| Cornwall, Pembroke, Isle of Wight and Channel Is. ... | 99s. 6d. | 100s. 9d. |

Less 2½ per cent. for cash monthly discount—subject to the usual Schedule Extras.

### White Lead

Associated Lead Manufacturers, Ltd. announce that owing to a reduction in the controlled price of Pig Lead, White Lead prices are reduced forthwith. The revised basic prices are as follows :—

Dry White Lead in 8-cwt. casks, £109 10s. per ton.

Ground White Lead (for lots of 5 cwt. and under 2 tons) in 5-cwt. casks, £130 per ton.

Ready Mixed White Lead Paint (for lots of 20 gal. and under 160 gal.) in 1-gal. tins, 41s. 6d. per gal.

The reduced prices apply to all deliveries with the exception of :—(*a*) fixed price contracts, and (*b*) orders received prior to June 10, 1949, where the price has been confirmed to the purchasers.

†*Mitcham B.C.—External decorations to housing estates. B.E. & S., Town Hall.

JUNE 30.

*Wembley T.C.—External repainting of 50 houses at Chaplin-rd. Boro' Treas. Dep. £1 1s.

JULY 1.

*New Sarum T.C.—Internal redecoration of Guildhall. City E., The Council House, Bourne Hill, Salisbury. Dep. £1 1s.

JULY 2.

*Harrow U.D.C.—External painting of 111 houses at Glebe estate. E. & S. Dep. £2 2s.

JULY 4.

Gt. Yarmouth T.C.—Redecoration of 7 schools. B.E., Town Hall.

JULY 11.

*Durham C.C.—Heating installation at Middleton-in-Teasdale County School No. 314. County A., Court-la.

## ROADS, SEWERAGE AND WATER WORKS

JUNE 25.

Maesteg U.D.C.—Roads, sewers and drains at "Turberville" site. E. & S., Council Offices. Dep. £2 2s.

**JUNE 27.**

**Benfleet U.D.C.**—Surfacing of roads. E. & S. Dep. £1 1s.

**Cuckfield R.D.C.**—Roads and sewers at Ardingly site No. 2. E. & S., Council Offices, Haywards Heath. Dep. £2 2s.

**Hendon T.C.**—Surfacing of roads. E. & S., Town Hall. Dep. £2 2s.

**Yeovil T.C.**—Roads and sewers at Milford estate. B.S. & Water E.

**JUNE 28.**

**Belper U.D.C.**—Roads and sewers at Belper-la., site No. 3. A. Percy Taylor, A.I.A.S., 59, Chapel-st., Belper, Derbys. Dep. £2 2s.

**JUNE 29.**

**East Suffolk C.C.**—Surface dressing of roads. County S., County Hall.

**Sheppey R.D.C.**—2,548 lin. yds. of 6-in. dia. stoneware pipe sewers, etc. E. F. Brading, M.Inst.M.E., 395, Minster-rd., Minster-on-Sea, Sheppey. Dep. £5 (payable to R.D.C.).

**JULY 1.**

**Atcham R.D.C.**—Extensions to Pimhill and West Atcham water supply schemes. E. & S., 24, St. John's-hill, Shrewsbury. Dep. £5 5s.

**JULY 2.**

**Clare R.D.C.**—Construction of concrete reservoir and reinforced concrete water tower. Silcock and Simpson, 10, Park-row, Leeds, 1. Dep. £5.

**JULY 4.**

***Ashby-de-la-Zouch R.D.C.**—Roads, sewers, sewage disposal works and water mains, etc., at Newbold. V. G. Bolt, A.I.A.A.&S., E. & Architect, Council Offices. Dep. £2 2s.

**Orpington U.D.C.**—Street works at Goddington estate. E. & S., Bark Hart. Dep. £2 2s.

**JULY 6.**

**Guildford R.D.C.**—Site preparation and sewage disposal works at Holmbury St. Mary site. E. & S., Millmead House. Dep. £2 2s.

**JULY 7.**

***Hartley Wintney R.D.C.**—Site preparation at Hawley. E. & S., Council Offices. Dep. £3 3s.

**JULY 18.**

**New Forest R.D.C.**—(a) Sewers and rising mains, etc., at Hythe and Dibden Purlieu, and (b) sewers, etc., at Hatchet. W. Herbert Bateman & Partners, Chesterfield House, Batheaston, Bath. Dep. £3 3s.

**Shrewsbury T.C.**—Roads and sewers at 2 estates. B.S., Guildhall. Dep. £2 2s.

**JULY 26.**

**Warwick R.D.C.**—Provision and laying of water main at Stareton. E. & S., 23, Waterloo-pl., Leamington Spa. Dep. £2 2s.

## GENERAL BUILDING WORK

### (LONDON)

**Chingford.** — Houses. — Plans prepared by Architect's Dept., Chingford Corporation Offices, Town Hall, E.4, for seven houses, Westward-rd. housing site, at £9,411.

**Heston.**—Houses.—B.O.A.C.'s Staff Housing Association propose 200 houses on northern boundary, Heston Airport. Heston and Isleworth B.C. have approved first 50. Architect not yet appointed.

**Heston and Isleworth.**—Houses and Shops.—B.C. to erect six houses and four shops, Section "A," Hounslow West estate Plans by Boro' S.

**Islington.**—Dwellings.—Housing Comm. to acquire site, Highbury New Park, at £7,350, for permanent housing. Architect not yet appointed.

**Lewisham.** — Health Centre. — L.C.C. to acquire site, Brockley-rise, for erection of health centre.

**Leyton.**—Houses and Flats.—Housing Comm. propose 32 houses and 48 flats, Crownfield-rd. area, for which plans have been prepared by Mr. J. W. Russell, A.M.I.C.E., Boro' E., Town Hall, E.10.

**London Airport.**—Flats.—B.A.O.C. propose 80 flats, Selwood-pl., for which the architects are Mr. L. H. Fewster and Partners, L.R.I.B.A., 22, Conduit-st., W.1.

**Poplar.**—Shops.—L.C.C. seeking compulsory purchase order for sites, Ellesmere-st., Hobday-st., Giraud-st. and Augusta-st., for temporary shops.

**Ruislip.** — Houses. — Mr. R. H. Ross, F.R.I.B.A., 40, Great Ormond-st., W.C.1, is preparing plans for 40 houses, Elmbridge-dr., for B.O.A.C.

**St. Pancras.**—Additions.—L.C.C. Ed. Comm. propose kitchen and dining unit, Holy Trinity C.E. School, N.W.1, and eventual rebuilding of school.

**Southall.**—Houses.—Housing Comm. propose 14 houses at Regina-rd. Plans by Mr. J. B. Thomson, M.I.C.E., Boro' E., Town Hall, High-st.

**Southall.**—Factory.—Messrs. A.E.C., Ltd., Southall, propose factory for battery manufacture and charging, Windmill-la.

**Southall.**—Community Centre, etc.—M.C.C. propose community centre and sanitary block, Spikes Bridge-rd.

**Southall.**—Flats.—M.H. approved purchase by B.C. of site at The Common for 12 flats. Boro' E., Mr. J. B. Thomson, M.I.C.E., Town Hall, High-st.

**Stoke Newington.**—Day Nursery.—L.C.C. propose acquiring site, Springdale-rd., for day nursery, at £10,000. L.C.C. Architect's Dept.

**Surbiton.**—Municipal Factory.—Surbiton Corporation considering erection of municipal factory at £120,000 to house 20 or more engineering firms. Mr. R. Thirlway, Boro' S., Corporation Offices, Ewell-rd., Surbiton, has prepared plans.

**Walthamstow.**—Flats.—Housing Comm. propose 24 flats, Chingford-rd. (High House), for which scheme Mr. F. G. Southgate, A.R.I.B.A., Boro' A., Town Hall, Forest-rd., is responsible.

**Walthamstow.**—Flats.—Plans prepared by Boro' A., Mr. F. G. Southgate, A.R.I.B.A., Town Hall, Forest-rd., for 18 flats, Blackhorse-rd. (Stoneydown), for Housing Comm.

**Walthamstow.**—Flats.—Housing Comm. propose 48 flats, Billet-rd. (Bulls Farm). Plans by Mr. F. G. Southgate, A.R.I.B.A., Boro' A., Town Hall, Forest-rd., E.17.

**Whyteleafe.**—Church Hall.—Mr. E. F. Starling, 3, Addiscombe-rd., Croydon, is architect for proposed church hall, Godstone-rd.

**Wood Green.**—Municipal Offices.—B.C. has instructed Sir John Brown and A. E. Henson and Partners, F.R.I.B.A., 117, Sloane-st., London, S.W.3, to prepare plans for new municipal offices proposed on site bounded by High-rd. and Bounds Green-rd. Est. cost, £500,000.

**Wood Green.**—Reconstruction.—M.o.W. prepared revised plans for reconstruction of sorting office, Terrick-rd/Buckingham-rd.

### (PROVINCIAL)

**Alnwick.**—U.D.C. propose block of flats and 50 houses. Architects, Reavell & Cahill, Lloyds Bank-chbrs., Alnwick.

**Ashtead.**—British Legion Haig Homes propose 20 houses, Farm-la., following successful appeal to Min. T.C.P.

**Ashton-under-Lyne.**—T.C. approved plans for extensions to premises, Old-sq., for Messrs. Montague Burton.

**Atcham.**—R.D.C. received M.O.H. approval for 8 houses, Cruckton site, at £15,135; 6 houses, Condover, at £8,193. J. R. Sockett, M.I.Mun.E., Boro' E. & S.

**Bakewell.**—U.D.C. to erect additional 20 houses.

**Belper.**—R.D.C. to erect 62 houses, Duffield.

**Bridlington.**—T.C. received sanction for 49 houses, Bessingby estate.

**Brighouse.**—T.C. approved plans for extension to works for D. R. Plews, Ltd., Calder-st.

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**Broxton.**—Extensive alterations to Egerton Arms, Broxton, proposed by proprietor, Mrs. Warburton.

**Castle Ward.**—Plans have been prepared by R.D.C. Surveyor (J. Bolton) North-rd., Ponteland, for 100 houses, Dinnington Village. No contracts let.

**Cheshire.**—C.C. propose classrooms, canteens and central kitchen, St. Vincent's R.C. Schools, Hamon-rd., Altrincham. County A., E. M. Parkes, F.R.I.B.A.

**Cheshire.**—Police Authority propose 31 houses, various sites, at £56,915.

**Chester-le-Street.**—W. & T. R. Milburn, 17, Fawcett-st., Sunderland, are architects for proposed licensed premises, Waldridge, for Vaux Associated Breweries, Ltd.

**Cleveland.**—Garbutt, Archibald & Garbutt, Albert-rd., Middlesbrough, are architects for factory, Skelton Trading Estate.

**Coventry.**—T.C. propose neighbourhood unit near Brookside-av., Allesley, including swimming baths, library, cinema, community centre and public-house. City A., D. E. E. Gibson.

**Cumberland.**—Plans are under consideration by C.C. for a clinic at Millom; C.C. is to spend £9,000 converting "Glenhill," Wigton, into nursery. Tenders will be obtained as soon as work is approved by Home Office.—C.C. proposes fire stations at Wigton and Cockermouth; also 13 firemen's houses, Workington, and six other houses at Scotby.—E.C. to spend £15,362 on school canteens, Torpenhow, Waverton, Irthington, Hethersgill, Castle Carrock, Allenby, Rockcliffe, Westnewton and Ireby. A site of 35 acres is being acquired at Seascale for sec. mod. sch. and jun. and infant sch.

**Golborne.**—D.C. approved plans for 16 aluminium houses for M.O.S.; kitchen and dining-room, Golborne Secondary Modern School.

**Goole.**—M.H. approved 20 houses, Moorfields estate.

**Huntingdon.**—M.H. approved allocation of further 35 houses for this year.

**Hyde.**—T.C. approved plans for 14 houses, Sheffield-rd., for Messrs. G. Fisher (Fallowfield), Ltd., 21, Albany-rd., Choriton, Manchester; offices, etc., Greencroft Mills, for Messrs. Triangle Valve Co., Ltd.

**Jarrow.**—Extensions are proposed, Abbotts Laboratory factory. Architects, Spence & Price, St. Mary's-pl., Newcastle.

**Jarrow.**—T.C. planning erection of 94 houses, Tunnel-rd., at £116,744. H. W. T. Perkins, Town Hall, Jarrow, is Boro' E.

**Leiston.**—Suffolk Ed. Comm. approved plans by County A. for jun. infant sch. at £135,000. First instalment this year.

**Lichfield.**—T.C. propose new civic hall at £70,000. Surveyor, L. Straw.

**Llandudno.**—H.C. considering plans by surveyor for 70 dwellings, Tre Creuddyn housing site; preparations also proposed for further development, same site.

**Middleton.**—T.C. approved plans for hotel, Mainway Circle, for Threlfalls Brewery Co., Ltd., Salford.

**Milnrow.**—U.D.C. propose 28 houses, Dentgate-st. housing site, Newhey. A. Travis, architect, Yorkshire-st., Rochdale.

**Nantwich.**—R.D.C. received M.O.H. sanction for £67,940 for housing purposes.

**Newcastle.**—Shotley Bridge Hospital Board propose improvements to hospital at about £12,000.

**Newcastle.**—Newcastle Breweries, Ltd., Haymarket, Newcastle, have had plans approved for new hotel, Longbenton. Architects, P. L. Browne, Son & Harding, Pearl-bldgs., Northumberland-st., Newcastle.

**Newcastle.**—Additional floor proposed to premises of R. Steinberg & Son, Hume-st. Architects, Marshall & Tweedy, Grainger House, Blackett-st., Newcastle.

**Newcastle.**—C. Soloman, St. Mary's-pl., Newcastle, is architect for proposed warehouse, Whitworth-st., for Messrs. Sutherland.

**Newcastle.**—Hetherington & Wilson, Countychbrs., Westgate-rd., Newcastle, are architects for alterations, etc., to Leazes Brewery, Newcastle, for W. B. Reid & Co.

**Newcastle-on-Tyne.**—C.C. preparing scheme for 4,000 flats, with health centres and churches included, at est. cost £10,000,000. City A., G. Kenyon, 18, Cloth-market, Newcastle.

**Newcastle-on-Tyne.** — Newcastle Hospital Board, "Dunira," Osborne-rd., Newcastle-on-Tyne, is considering plan for pathological laboratory and blood-transfusion centre at General Hospital at £180,000. Mr. P. H. Knighton, Osborne-rd., Newcastle-on-Tyne, is architect. He is also preparing plans for extending Sunderland Royal Infirmary.

**Newcastle-on-Tyne.**—H.C. received approval for 10 shops and 10 flats, Longbenton. Plans by G. Kenyon, City A., 18, Cloth-market, Newcastle.

**Newcastle-on-Tyne.**—Extensions proposed to store, Back Albert-st., for J. Swan & Son, to plans by N. A. Mackenzie, 1, Eldon-sq., Newcastle.—W. Bruce, 17, Connaught-gdns., Forest Hall, Newcastle, has prepared plans for bakery additions, City-rd., for Embleton & Son.—Revised plans have been drawn up by Arthur Kirkup, 13, Swinburne-st., Gateshead, for factory, Grey's Brickfield, for Hamptons (Heating), Ltd.—Hetherington & Wilson, County-chbrs., 52, Westgate-rd., Newcastle, are architects for alterations to brewery, Claremont-st., for W. B. Reid & Co., Ltd.—M. A. Mackenzie, 1, Eldon-sq., Newcastle, is architect for store at The Close for J. Dove & Co.—M. Catoff, Trafalgar-st., Newcastle, is architect for four temporary stores, Russell-ter., for Kay Kitchencraft Co., Ltd.

**Northampton.**—C.C. propose new fire station, Earls Barton.

**North Riding.**—C.C. planning conversion of Welburn Hall, Kirbymoorside, into a residential school; obtaining site at Whitby for establishment of highway depot.—Plans being considered by Home Office for offices at South Bank-on-Tees at £10,150.—Sites are to be acquired by County E.C. at Barton (for practical instruction centre); Northallerton (temporary junior school and nursery school); and Richmond (central kitchen and school dining centre).

**Radcliffe.**—T.C. approved plans for additions to works, Ainsworth Mercerising Co., Ltd. Architects' Dept., Lancashire Cotton Corporation, Ltd., Blackfriars House, Manchester 3; additions, Ainsworth Bleachworks, for Vantona Textiles, Ltd.; additions, Canal Mill, for J. C. Hamer, Ltd.

**Sheffield.**—T.C. propose adapting "The Moss," Limb-la., Dore, for nursery unit. Est. cost, £7,280. City A., W. G. Davies, A.R.I.B.A.

**South Shields.**—Northern General Transport Co., Gateshead, propose a central bus stn. Architect, A. H. Fennell, Bridge End-chbrs., Chester-le-Street, Co. Durham.

**Stockport.**—T.C. seek loan sanction for £5,000 for conversion of 32, Heaton Moor-rd. as school clinic; propose children's home, Westleigh, Mauldeth-rd., Heaton Mersey; conversion, Moor House, Thornfield-rd., into branch library.—E.C. propose prim. sch., Bank-la.; to apply for loan sanction for £78,800 for erection of Bridge Hall Junior School. Boro' S., W. F. Gardiner, A.M.I.C.E.

**Stockport.**—T.C. approved plans for 40 houses, Ashburn-rd. and Bower House, Fold-la., for J. W. France; sheet metal works, Sheffield-st. and Gordon-st., for Berrisford & Booth, Ltd.; amended scheme for canteen, Newbridge-la., Pickerings Produce Canners, Ltd.; 8 shops, 2 pairs of s.-d. houses and 11 lock-up garages, Stockport-rd. and Kensington-rd., for R. W. Willan, 2, Brooklands-rd., Sale; sand blasting and spraying shed, etc., for Messrs. Anti Corrosive Finishes, Ltd., Joules-ct. and Waterloo-rd.; addition of operating theatre unit, Infirmary, Wellington-rd., for Stockport and Buxton Hospital Management Committee; new premises for Montague Burton, Ltd., Lower Hillgate and Rostron's Brow.

**Stockton.**—Workshop block proposed at Stockton Technical School. G. R. Clayton, County A., Court-la., Durham City.

**Stockton-on-Tees.**—C.W.S., Ltd., are planning erection of £60,000 dairy, Church-rd. Plans are by C.W.S. Architects' Dept., Manchester.

**Stoke-on-Trent.**—T.C. propose 36 maisonettes and 44 houses, Springfield, Trent Valley. Mr. A. Burton, A.M.I.C.E., engineer and surveyor.

**Sunderland.**—T.C. considering site, Springwell-rd., for health centre. Mr. J. E. Lewis, 27, Fawcett-st., Sunderland, is Boro' E.

**Todmorden.**—N.C.B. submitted plans to Corporation for new colliery, Owens Clough.

**Tyldesley.**—U.D.C. propose swimming baths and public hall, Shuttle-st.

**Warwick.**—County Buildings Comm. instructed County A. to include new County and Diocesan Record Office in plans for new museum to be erected, Priory Estate.—Corporation approved plans for extension and alterations, Westgate Lodge, Stratford-rd., for Messrs. Flower & Sons, Ltd.

**Warwickshire.**—E.C. to proceed with first instalment of Nicholas Chamberlaine Secondary School, Bidsworth, at £260,000.

**Wharfedale.**—R.C. approved plans for 14 s.-d. houses, The Birches, Bramhope, for Coates & Shaw.

**Wormingford.**—37 further huts on Wormingford Airfield are to be converted by Lexden and Winstree Council at £7,513.

## TENDERS

* Denotes *accepted*.
† Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modification*.
¶ Denotes *accepted by H.M. Government Departments*.

**Amble.**—38 houses for U.D.C.: *R. Carse & Sons, High-st., Amble.

**Bath.**—Alterations and adaptations at Beechfields House, for B.C.: *Hope, Jefferies & Fortune, Melksham, £5,167.

**Blackpool.**—12 houses at Merside estate, for T.C.: *J. Birtwistle, Ltd., Blackpool.

**Brierfield.**—14 houses at Mansfield estate, for U.D.C.: *Russell Bros., Ltd., Wades House-rd., Nelson, £20,893.

**Bury.**—Houses for T.C. 40 at Brandlesholme No. 2 site: *Middleton & Co. (Blackpool), Ltd., £1,249 each; 28 at Unsworth site: *J. E. France, Housing Site, Swinton-crescent, Unsworth, £31,032.

**Cemaes.**—Ten houses at St. Dogmaels, for R.D.C. J. Owen Parry & Lewis, Ammanford, architects: *A. Phillips, St. Dogmaels, Cardigan, £14,701.

**Cheltenham.**—Four houses at Rowanfield-rd. estate, for B.C.: *Holland & Witney, £4,946.

**Crook (Co. Durham).**—Factory additions for Marshall Richards Machine Co., Ltd. Architects, J. W. Hanson & Sons Northumberland-st., Newcastle-on-Tyne: *William Moss & Sons, St. Mary's-pl., Newcastle-on-Tyne.

**Chesterfield.**—Eight houses at 2 sites for R.D.C. J. B. Wikeley, M.Eng., A.M.I.C.E., E. & S. Tenderers: 4 at Hallfield-gate: *Surgey Bros., Mickley-la., Higham, Derbys., £6,108; 4 at Marsh-la.: *Brown Bros., 53, Dronfield-rd., Eckington, nr. Sheffield, £5,783. (Subject to M.H. approval.)

**Congleton.**—32 houses at Parson-st. site, contract No. 1. C. Brown (A.), A.R.I.C.S., M.I.Mun.E., Dip. T.P., A.M.T.P.I.:—
J. W. Swinton, Hassall-rd., Sandbach, Cheshire ... ... ... ... ... £51,662
Evans & Co., 54, Stafford-st., Longton, Stoke-on-Trent ... ... ... ... ... 49,184
G. H. Key & Co., 7, Crossway-rd., Sneyd Green, Burslem, Stoke-on-Trent ... 46,734
Cornes Construction Co., Ltd., Sentinel-bldgs., Station-rd., Tunstall, Stoke-on-Trent ... ... ... ... ... 45,751
G. Minshall & Co., 292a, Waterloo-rd., Cobridge, Stoke-on-Trent ... ... 45,280
G. and J. Seddon, Ltd., 55, Duke-st., Fenton, Stoke-on-Trent ... ... ... 41,941
Machin & Allen, Macclesfield-rd., Congleton ... ... ... ... ... 39,929
A. J. Pass, Antrobus-st., Congleton... 38,607
J. T. Yearsley, Park-la., Congleton ... 37,159
*H Charlesworth, Giantswood-la., Congleton ... ... ... ... ... 37,127

**Cuckfield.**—Four houses at West Hoathly, for R.D.C. E. & S., Rural Council Offices, Boltro-rd., Haywards Heath: †H. Mills & Co., Wivelsfield-rd., Haywards Heath.

**Dartford.**—26 houses and bungalows at Sad-

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diers Hall, Eynsford scheme, for R.D.C. E. & S., Council Offices, West Hill: *A. F. Taylor, Ltd., £30,901.

**Farnborough.**—22 houses at Hawley-la. estate, for U.D.C.: *H. T. Wells, Tongham, £33,511.

**Gateshead.**—Hospital training school at Windy Nook. Architects, Spence & Price, St. Mary's-pl., Newcastle: *J. & W. Lowry, Corporation-st., Newcastle.

**Golborne.**—52 houses at Derby-rd. estate, for D.C.: *Direct Labour, £68,500.

**Goole.**—26 houses and 12 flats at Western-rd., for T.C.: *Platt & Featherstone, Ltd., £40,796 (subject to M.H. approval).

**Hartley Wintney.**—17 pairs of houses at Cove, nr. Farnborough, for R.D.C. E. & S. *Ricketts Bros., Farnham, Surrey, £55,864.

**Ilford.**—War damage and maintenance repairs to shop premises and showroom, for Cakebread, Robey & Co., Ltd.: *H. L. Bird, Ltd., Hainault-st., Ilford, Essex.

**Kings Lynn.**—24 houses for T.C.: *Direct Labour.

**L.C.C.**—Contracts exceeding £2,500 in value placed by L.C.C. during period ended June 14. Electrical installation, Peckham Rye School, Mead & Jeffery, Ltd., W. Ealing. Supplying and fixing of chestnut fencing and post and wire fencing at six cottage estates, Peerless Fence and Products, Harefield. Electrical installation, Barlby-rd. School, Tucker Installations, Ltd., S.W.1. Electrical installation, Purrett-rd. School, S.E.18, Reliance Electrical Co., Ltd., Erith. Construction of three blocks of dwellings, etc., at Windsor-st. site, Islington, and two blocks of dwellings, etc., at Mead-pl. and Homerton-terr. site, Hackney, Rowley Bros., Ltd., Tottenham. Construction of two blocks of dwellings, children's fitted playground and 30 perambulator sheds at Devons estate, Poplar, Terson's, Ltd., E.C.1.

**¶London (Admiralty).**—*Devonport* District, Foundation works, Griggs & Son, Ltd., 12, Grimstone-ter., Nutley, Plymouth. *Coventry*, R.N. Depot, Clocking station and cloak-rooms, H. Clarke & Sons, Ltd., 48, Coronation-rd., Coventry.

**¶London (Air Ministry).**—Contracts to value of £500 or over for week ended June 4:—
Rewaterproofing sheds, Structural Waterproofers, Ltd., London, S.W.6. Electrical work, W. J. Furze & Co. (London), Ltd., London, S.W.1. Building work, John Best (Edinburgh), Ltd., Edinburgh. Erection of timber wireless tower, G. M. Carter (Erectors), Ltd., Waddon, Surrey. Hot-water installation, Matthew Hall & Co., Ltd., London, N.W.1.

**¶London (Air Ministry).**—Contracts to value of £500 or over for week ended June 11. *Cable work:* Johnson & Phillips, London, S.E.7. *Heating work:* G. W. Haden & Sons, Ltd., London, W.C.1. *Gritted surface dressing:* P. M. Smith & Co., Ltd., Edinburgh, 12; Wm. F. Rees, Ltd., London, S.W.1; Bituminous Road Products, Ltd., Middlesbrough; General Asphalte Co., Ltd., London, S.W.1; Worksworth Quarries, Ltd., London, N.1; Yorkshire Road Tar Binders, Ltd., Leeds, 10; All-Weather Mechanical Grouting Co., Ltd., London, S.W.1; W. & J. Glossop, Ltd., Bridgend, Glam. *Artificers' work:* Scottish Aviation, Ltd., Prestwick Airport. *Hut conversion to married quarters:* Walter Lawrence & Son, Ltd., Swaffham, Norfolk. *Heating work:* Z. D. Berry, Ltd., London, S.W.1.

**¶London (M.O.W.).**—Contracts placed by M.O.W. for week ended June 4:—
*London*: P.O. Training School, Belgrave House, King's Cross, Repairs and erection of partitions, M. J. Gleeson, Ltd., Haredon House, London-rd., North Cheam; 17, North Audley-st., W.1, Internal painting and cleaning, Sykes & Son, Ltd., 8, Essex-st., Strand, W.C.2. *Hampshire*: R.A.E., Farnborough, Sundry works, Lavender McMillan, Ltd., 54, Cheam Common-rd., Worcester Park. *Herts*: St. Alban's Telephone Exchange, Erection, E. J. Waterhouse & Sons, Ltd., King's Works, Chipperfield. *Lancs*: Board of Trade Training Centre, Radcliffe, Conversion to D.P.E.C., J. Gerrard & Sons, Ltd., Swinton; H.P.O., Fleetwood, Temporary sorting office, Atherton Bros. (Blackpool), Ltd., Peter-st. Sawmills, Blackpool. *Leics*: M.N.I., 181a, Humberstone-rd., Leicester, Adaptations and alterations, Edwin Fox & Co., Ltd., Evington-st., Leicester. *Morayshire (Scotland)*: Telephone Exchange, Elgin, Extensions and alteration, Scottish Tarmacadam & Asphalte Co., Ltd., 44-52, Bilbao-st., Glasgow. *Northumberland*: Holy Island, Coastguard Station, Coastguard buildings, J. & W. Lowey, Corporation-st., Newcastle-on-Tyne. *Som*: I.R.O., Swallowcliffe, Yeovil, Hutted extension, W. Rist, North-st., Langport. *Yorks*: Barnsley P.O., Old Mill Site, Falcon-st., Garage and engineers' stores, W. Barber, 52, Northgate, Pontefract.

**¶London (War Dept.).**—Works contracts placed by War Dept. for week ended June 4:—
*Belfast*: Miscellaneous work, J. Miskimmon & Sons, Ltd., Belfast. *Hampshire*: Road work, The Western Trinidad Lake Asphalt Co., Ltd., Bristol 8. *Somerset*: Painting work, J. Hood, Caldicot, Mon. *Hampshire*: Road work, The Allweather Mechanical Grouting Co., Ltd., Lon-

don, S.W.1. *Essex*: Painting work, S. Lupton & Sons, London, S.W.1. *Pembrokeshire*: Hutting work, Dudley Boswell & Co., Ltd., Wolverhampton. *Salop*: Building work, Wm. T. Nicholls, Ltd., Gloucester.

**Middlesbrough.**—12 houses at Town Farm, for T.C.: *Premier Dwellings, Ltd., Cargo Fleet-la., Middlesbrough.

**Middlesbrough.**—66 houses at Thorntree Estate (Third Development, Section 26), for T.C. J. A. Kenyon, B.E.: *Direct Labour.

**Morley.**—12 houses at Vicarage-av. estate, Gildersome, for T.C. M. H. Brook (A.), Housing Director, National Provincial Bankchbrs., Queen-st. Bricklayer, tiler, plumber, plasterer, *The Morley and District Building Trades Federation, Sec., N. Tempest, Queen-st., Morley; joiner, H. Barraclough & Son, Wesley-st., Morley; painter, *L. Sheffield, 53, Grange-ave., Thornbury, Bradford.

**Newcastle.**—Ward alterations and extensions at General Hospital: *J. & W. Lowry, Corporation-st., Newcastle.

**Newcastle.**—Reconstruction of W. Ferguson & Sons hardware, etc., premises, Prudhoe-st. Architects, Spence & Price, St. Mary's-pl., Newcastle: *T. Clements & Sons, Selborne-gdns., Newcastle.

**Newcastle-on-Tyne.**—18 houses in flats at Gillies-st., Walker. Architect, G. R. Holmes, 1, Prior-ter., Tynemouth: *R. A. Gofton & Sons, Monkseaton.

**Norfolk.**—Works for E.C. New lavatories at East Dereham, London-rd. County Primary School: *W. W. Gould, Norwich, £2,400; Kitchen and dining-room at Great Bircham Voluntary Controlled Primary School: *W. Lawrence & Son, Ltd., Swaffham, £4,712; New dormitories and recreation room at Bramerton Boys' Remand Home: *R. G. Carter, Ltd., Drayton, £5,814.

**Northumberland.**—Prefabricated kitchen and dining-room at Whitley North County Primary and Mixed School, for C.C.: *H. D. Harding, Ltd., Wellington-rd., Gateshead 11, £10,192.

**Ogwen.**—12 Airey houses at Tregarth and 4 at Talybont, for R.D.C.: *Evans Partners, Pentraeth, £23,000.

**Staffs.**—Alterations and additions for kitchen and dining-room at Biddulph Krypersley Girls' County Secondary (Modern) School, for C.C. A. C. H. Stillman (F.), Architect and S., County Ed. Offices, Earl-st., Stafford. Quantities by H. Vale & Sons, 21, Waterloo-rd., Wolverhampton: *G. H. Key & Co., Ltd., 7, Crossway-rd., Sneyd Green, Burslem, Stoke-on-Trent, £2,156.

**Staveley.**—40 houses and six shops with flats at Inkersall Green estate, Contract No. 5, 28 houses and 16 bungalows at Inkersall Green estate, Contract No. 6, for U.D.C. *H. W. Gilman, M.I.Mun.E., E. & S. Contract No. 5: *J. & A. Belfilt & Co., Ltd., Morton, Sheffield; Contract No. 6: *J. Hall & Co. (Bldrs.), Ltd., Frecheville, Sheffield.

**Wharfedale.**—Airey houses at Tewston, Norwood and Stainburn, for R.D.C.: *Tom Smith (Otley), Ltd., 13, Market-st., Otley.

**York.**—220 houses at Askham-la. estate (East), for T.C. City E. & Architect, Guildhall: *F. Shepherd & Son, Ltd., York, £296,803.


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